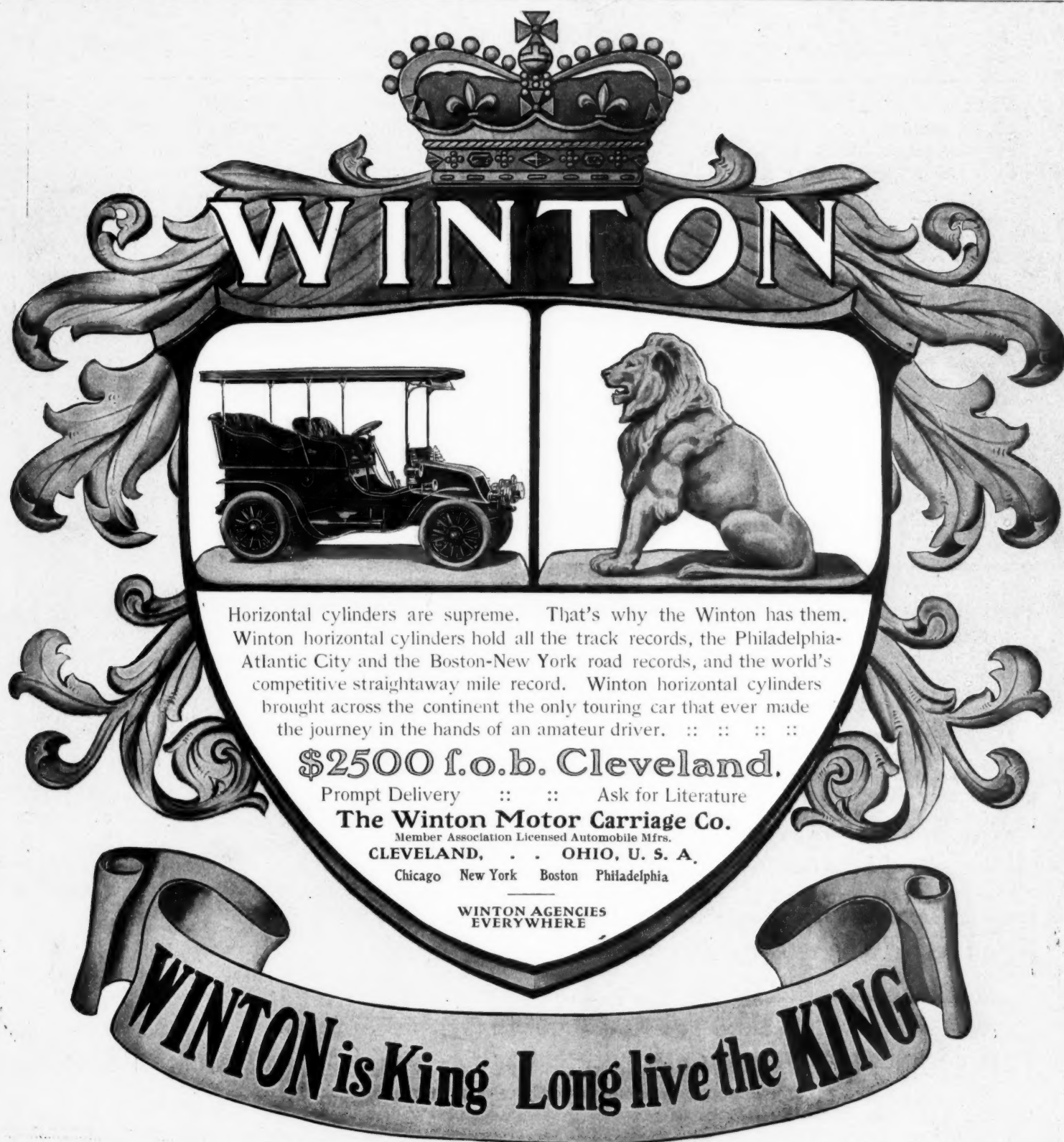


MOTOR AGE

Vol. V No. 19

MAY 12, 1904

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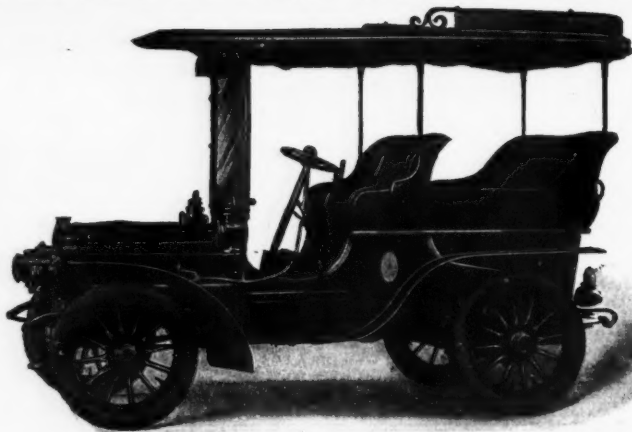
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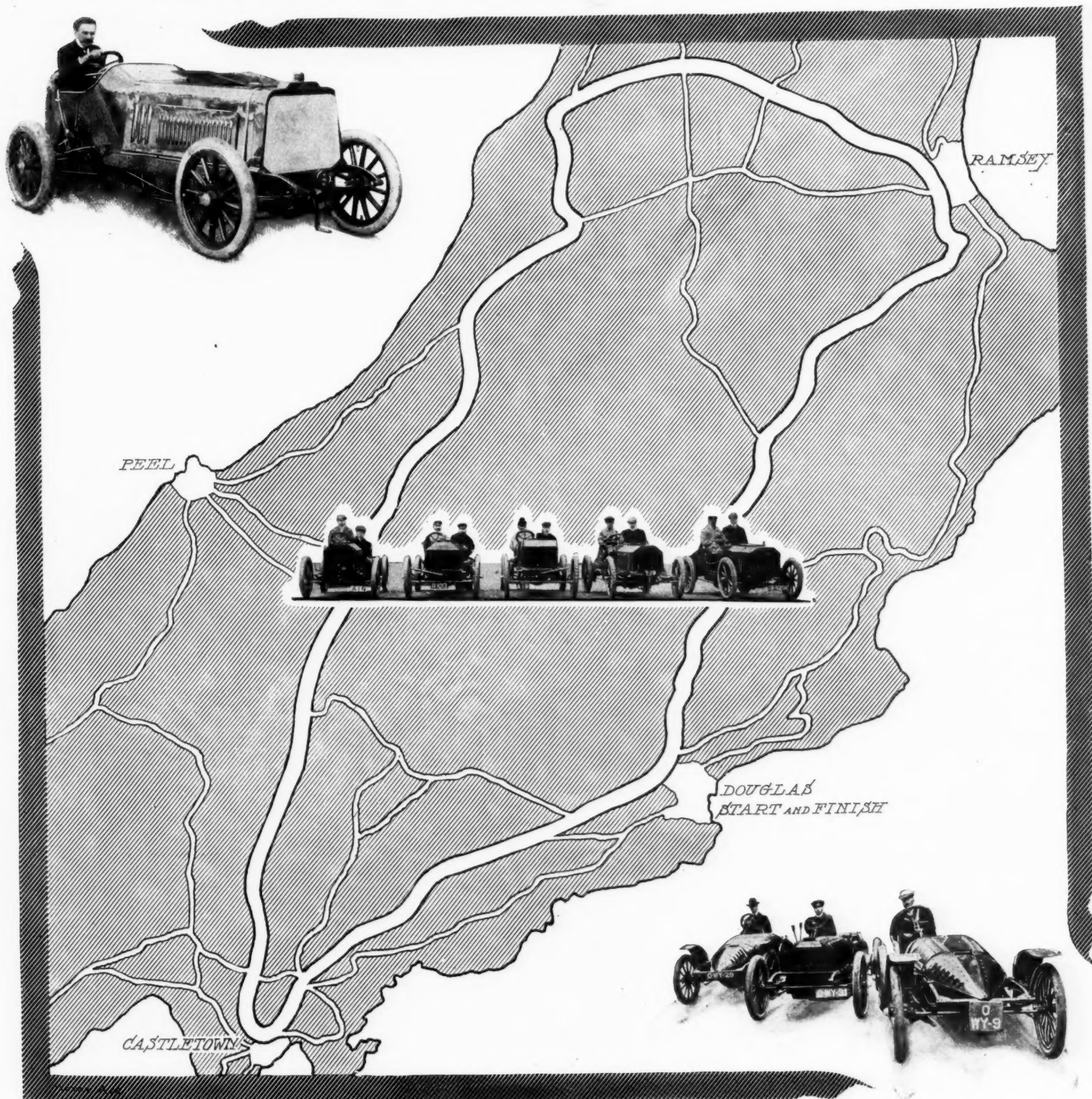
MOTOR AGE

VOL. V. NO. 19

MAY 12, 1904

\$2.00 Per Year

ENGLISH TRIALS ON THE ISLE OF MAN



ONE OF THE DARRACQS

THE NAPIER QUINTETTE

THE THREE WOLSELEYS

NAPIERS BEST THE FIRST DAY



DIFFICULT TURNS ON THE BRITISH TEST COURSE

LONDON, May 10—Cablegram—The British eliminating trials, begun today on the Isle of Man, resulted in one Napier, one Wolseley and all three Darracqs being declared out, while four Napiers and two Wolseleys made clean enough records to keep them in the trial events.

The weather condition was most favorable and the roads, after weeks of work, were in excellent shape for top speed. There were big crowds at the trials, all hostleries being crowded. The course for the 48½ miles was well patrolled and the arrangements at the start were all that could be desired.

The line-up for the start was as follows: J. W. Stocks, Napier; John Hargreaves, Napier; W. Clifford Earp, Napier; E. Campbell Muir, Wolseley; S. F. Edge, Napier; Sidney Girling, Wolseley; Charles Jarratt, Wolseley; M. Homery, Darracq; M. Edmond, Darracq; Mark Mahew, Napier; C. Rawlinson, Darracq.

The work laid out for today was to run the cars 8 hours over the 48½-mile course, going five rounds. Edge and Jarratt covered the first round in 1 hour 17 minutes, keeping close together all the way and making all controls according to the rules. Hargreaves, Girling and Earp followed in a bunch 3 minutes later. Stocks' time was 1 hour 22 minutes, and Homery came in 7 minutes later. Both Muir and Girling suffered punctures, but the latter made a quick repair and lost little time.

The five Napiers and two Wolseley cars, Jarrott and Girling, survived the second round. In the third round Edge gained 24 minutes on Stocks, with the others but a few minutes back.

At the end of the fourth circuit, Edge was leading Stocks, his time being 5 hours 59 minutes, and Stocks' 6 hours 4 minutes, so that Stocks covered this lap considerably faster than Edge, having made up all but 5 minutes of his previously lost time.

In the fifth and last lap Stocks' machine sprunk a leak in a radiator tube, Edge lost considerable time through a puncture, Girling had to go along with only three cylinders working, and Earp, going well, made substantial gains.

The fifth and last round was finished by Earp, Stocks and Edge in a bunch in the order named in 7 hours 53 minutes, Edge's puncture and Stocks' leaky tube having permitted Earp to get to the front. Jarrott finished in 7 hours 5 minutes, and Girling in 7 hours 59 minutes.

Tomorrow the hill-climbing tests will take place at Ramsey, where the road rises on the average over 200 feet per mile for 6 miles. This road is up a veritable mountain side and will thoroughly test any car's ability.

Thursday the speed trials take place over the Douglas promenades, which are some 2 miles in length, giving opportunity to run a car at top speed for a full mile.

ISLE OF MAN COURSE

The Quarter bridge road, where the start of the road race was given, is located between Woodlands and Bray hill, about a mile from Douglas, which is the most important city in the Isle of Man. At the start the ground is level but after a quarter of a mile the road becomes hilly, the grades ranging from 1 to 7 per cent. After a few miles of this kind of ground a flat, wide stretch runs for about a mile with a slight downward grade when reaching Bray hill. From there to Governor's bridge a beautiful, level piece of road permits the running of the cars at full speed. All along this part of the course the scenery is very pretty and quite typical of the English country in general.

From Governor's bridge to Onchan the road is almost circular and the drivers have to be very careful, as there are several spots which are dangerous and also a number of cross roads which may mislead if the greatest attention is not given. After getting out of the little village the road again becomes hilly for about 500 yards, but when nearing White bridge hill becomes level. About an eighth of a mile from the hill the road becomes suddenly very steep and the decline continues for about half a mile. This is one of the most difficult parts of the entire route.

Laxey, about a mile distant, is the next town on the route, and the road leading there is flat and permits good speed. When entering into the village it was suggested that the drivers slow down considerably on account of several railway and street car crossings and a number of sharp curves. In getting out of Laxey there is a fine piece of level road fully 20 miles long, leading to Baldrine hill. The scenery from the top of this hill is splendid, and compares favorably with some of the better known view points in Europe. As a matter of fact it would be difficult to find a more interesting spot, and even in Switzerland there are very few mountains or hills whence a more enjoyable view can be obtained.

An almost level road runs then to Corney hill. It is several miles long and gives a good

opportunity to a motorist to gain several minutes on a near competitor, unless the competitor likewise takes advantage of the speeding chance. However, unless the man in the car keeps his eyes wide open he might get into trouble, because just a few hundred feet from Corney hill the road takes a very sharp turn and then goes up a pretty stiff grade. It is a difficult stretch and the cars must slow down.

After passing this steep hill the road becomes again fairly level and for several miles there are no difficult stretches; but there are many crossings. A curve leads to Ballure bridge, where there is an electric railway crossing. Ramsey, an important town of the isle, is located about a mile further, and after leaving this town there are no hills for a distance of about 10 miles. This entire stretch of road is perfectly level, wide in some places, very narrow in others, but always of fine surface, which permitted the greatest speed the cars could develop.

The village of Ballaugh is next on the route, and then come several other villages, with nothing special as road features until Glen Helen road is reached. From here to Bella-craine, a stretch about 7 miles long, the road is in turn level and hilly, but not so difficult as parts of the first portion of the route. When nearing Craig Willie's hill cars had to be slowed somewhat on account of the very steep grade, which continues for nearly a mile, with two sharp curves at the bottom of the hill.

From Bella-craine to Foxdale hill there is a level stretch and also a nasty piece of steep grade, short but very steep. The Foxdale hill is also a difficult one to ascend, but after this is overcome there is a stretch of fine level road about 7 miles long, leading to Silverburn hill and bridge. From there to the Malen cross roads the course offers no difficulties, but soon after there is a sharp turn, followed by a number of short alternate good and bad stretches, with many crossings which compel the driver to be careful and to go at reduced speed, until Douglas road is reached. On the way to Lanton there are many bridges, curves, up-and-down roads—in fact, a perfect specimen of difficult roadway. It is here that speeding cars find the bulk of their troubles, and much depends on the handling of the cars in this section as to the ultimate outcome in covering the course.

From Lanton there is a straight run to Richmond hill, which is considered a very difficult one. From there on the road leading back to

the starting point, Quarter bridge, is good and enable fast running.

For several weeks the authorities had been working on the road to make it not only safe but speedy as well, filling holes, repairing bridges, leveling hummocks, and, in fact, doing all possible to make the race a success.

THE CARS TESTED

The eleven cars entered for the eliminating trials included five Napiers, three Wolseleys and three Darracqs. They vary from 50 to 100 horsepower and average about 2,000 pounds in weight.

The five Napier cars are of four different sizes, the most powerful of which is Mark Mayhew's 100 horsepower machine. Next is the 80 horsepower car driven by S. F. Edge. Of the remaining three cars there are two 60 horsepower vehicles, to be driven by John Hargreaves and Clifford Earp, while Mr. Stocks' car is a 50 horsepower machine. In general respects all these vehicles are of similar design.

The three smaller vehicles have armored wood frames, whereas the others have pressed steel frames. They all have four-cylinder engines, the cylinder walls of which are jacketed by a single aluminum casting. Except on the 100 horsepower car, the inlet valves are atmospherically operated; the valves being of the Napier quadruple type. All the clutches have metal-to-metal friction surfaces, and those on the three smaller vehicles are fitted with four engaging springs. Some little modifications are found on the larger clutches, among these being that three springs are provided instead of four, and the clutches are not quite the same even on the two big cars. A high tension system of ignition has been adopted throughout, but the only racer which has the new synchronised Napier ignition apparatus is Mr. Edge's car. The tires on all these cars are 34 inches in diameter, and except on the two largest they are all of equal size, being 95 millimeters wide, on the 80 horsepower and 100 horsepower racers, however, the driving wheels have 120 millimeter tires. The tires are of the Dunlop non-skid style. Some little difference exists on the different machines in the system of lubrication which is adopted, for, whereas

on the two 60 horsepower and on the 50 horsepower cars an automatic mechanical lubricator is used, a drip-feed, supplemented by a hand pump, is found on the 80 horsepower and 100 horsepower models. The transmission gears on all the cars provide for three forward speeds and a reverse, and are so designed that a direct drive is obtained on the high speed. On the 100 horsepower car roller-bearings are used throughout the gear box, but plain bearings are fitted in the gear on the 80 horsepower model. A new design of back axle, too, has been adopted on the 80 horsepower car, though the axle on this machine is the same as on the others inasmuch as roller-bearings are used for it, and the thrust of the bevel wheels driving it is taken by ball-bearings.

The radiators have been considerably increased in size this year. They are of the honeycomb type, and are provided with belt-driven fans. In the two larger cars, the circulating pumps are chain driven and on the smaller vehicles these pumps are driven direct from the engine. The wheel-base is in all cases long, and on the 80 horsepower car is 8 feet 8 inches.

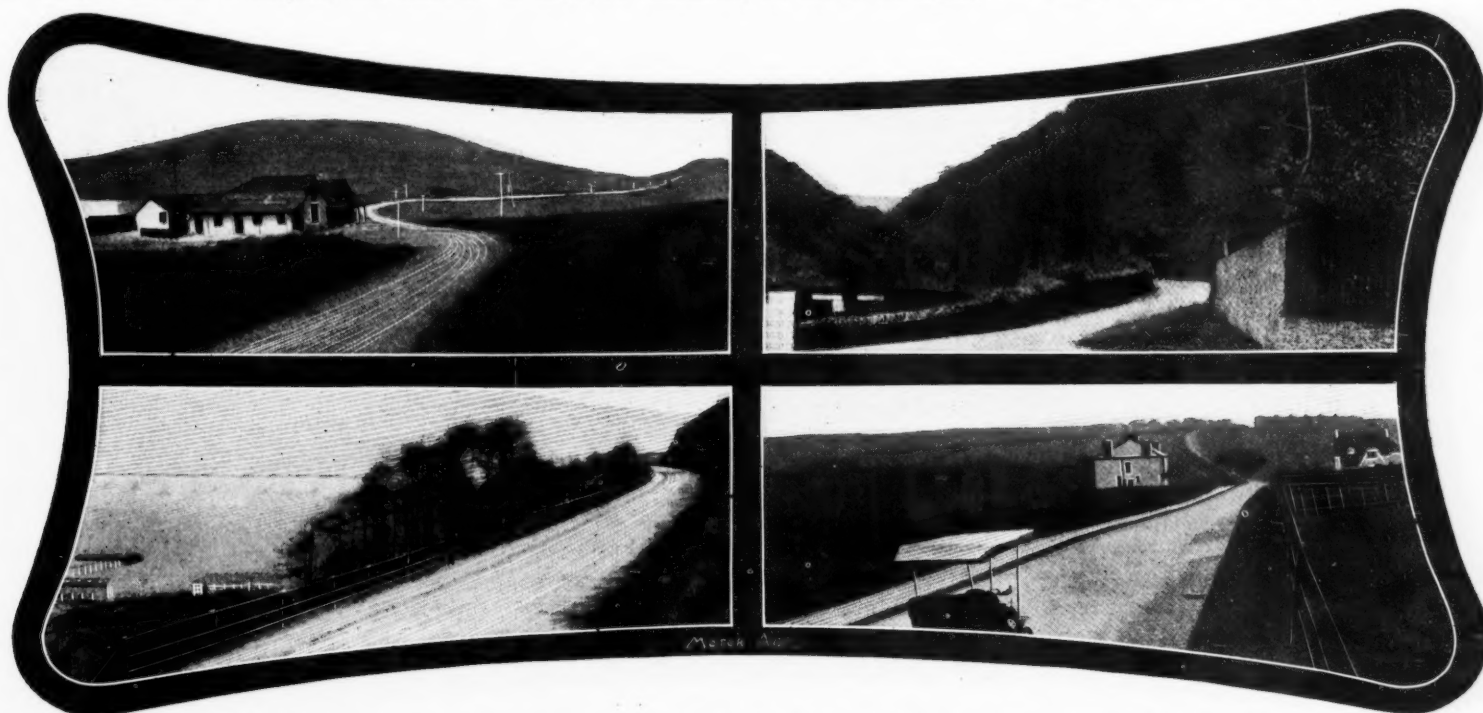
The three Wolseley cars entered include two of the more recently designed 96 horsepower cars, called the Beetles because of their peculiar, flat bodies, and a 72 horsepower car. The shell-like shield projecting forward from the front of the bonnet of the big cars is not only intended to act as an effective windcutter, but also to direct a powerful current of air through the large circular multitubular radiator. The four horizontal cylinders lie alongside one another, and in this respect they constitute a radical departure from previous Wolseley engines—including the 72 horsepower car. The cylinders project forwardly from the crank-chamber, and have atmospherically operated inlet valves. A very noticeable feature of these racers is the arrangement of the mechanic's seat on a very low level, with a deep well to accommodate his feet. In order to arrange for this, the speed change gear lies on the right side of the car, and it is only the differential countershaft that passes across to the other side. An extraordinarily small starting handle is employed, considering the size of the engine,

and this is rendered possible by entirely cutting out three of the cylinders and by putting the fourth on half compression, when starting.

The engines on these large cars are—contrary to usual Wolseley practice—fitted with governors, but the governors are mounted in an unique position, being fitted to the rear end of the fan spindle. They act upon the throttle valves and are subject to the control of one of the hand levers that is fitted above the steering wheel, the other small hand lever alongside it varying the time of ignition. The fan lies immediately behind the radiator, and is driven by a belt from a longitudinal shaft projecting forward, from the engine. This shaft primarily drives the circulating pump through worm gearing. The pump, the fan, and the governor are all rigid with the radiator and are flexibly connected with the engine. The radiator has four rows of tubes, those in the rear row being straight and those in the front row being bowed out forward.

The main clutch is operated from the pedal through a rod lying outside the frame and the dust proof casing, and the necessary adjustment for the clutch is provided by a left and right-hand connection in this rod. Provision is also made for enabling the mechanic to prevent the clutch from slipping, if at any time it should tend to do so, and for this purpose there is a small hand-lever mounted to the left of the pedals near to him. The main fuel tank lies at the back of the car on a lower level than the carbureter, and there is a strong shield beneath it to prevent it from being fractured by loose objects flying up from the road. A pressure is normally maintained in this tank from the exhaust gases, and a hand pump is also fixed near the mechanic's seat for the same purpose. Large, and very easily removable, filler-caps are fitted to the tanks, and there is a supplementary fuel tank mounted on a higher level than the carbureter, to feed the engine, whilst the main tank is being filled. The speed change gear provides for four forward speeds and a reverse, is driven by a Renold's silent chain, and has its shafts mounted in ball-bearings. Dunlop tires are fitted.

The three Darracq cars are all identical. They were built by G. and J. Weir, limited, of Glasgow, in a remarkably short space of



SOME OF THE PICTURESQUE STRETCHES OF THE BRITISH ELIMINATING TRIALS COURSE ON THE ISLE OF MAN

time, from designs furnished by A. Darracq & Co., of Paris. They, like the Napiers, are of the live-axle style of construction, and, like all the competitors in the eliminating trials, have four-cylinder engines. The cars have pressed steel frames, and the engine is covered by a large square-shaped bonnet that meets the honeycomb radiator in front, and the boat-shaped body, with its curiously-shaped dash, at the back. The engine has all its four cylinders cast separately, and these are bolted as usual, to a large aluminum crank chamber. The bore of the cylinders is 160 millimeters, and the stroke is 140 millimeters. The inlet valves, which are of large size, are fitted centrally in each cylinder head with the spindles projecting vertically upwards. The valves are actuated by rocking levers and vertical push rods, from the same cam shaft as the exhaust valves, the cam shaft and the exhaust valves being on the left side of the engine. Both low tension and high tension ignition plugs are fitted, all of these being on the right side of the engine. The magneto for the former is fixed on this same side and is gear-driven from the cam shaft that operates its igniters. The commutator for the high tension system is fitted right in front of the car just beneath the radiator, and the wires from the coils on the dash are led through a neat casing to the ignition plugs. In the arrangement of the gear wheels on the front of the crank chamber the pinion on the crank shaft not only drives an idle half-speed gear, but also the circulating pump. Large and small spur-gears both mesh with the idle wheel, the former being on the front end of the cam shaft operating the inlet and exhaust valves, and the spindle of the latter being used for driving the fan. The commutator is mounted in line with the cam shaft so that it, too, is driven by the large gear. Another spur-gear, driven by the small main gear drives a wheel upon the shaft on which is mounted the cams for operating the lowest tension igniters. All four cylinders are fed from a single carburetor through induction pipes of very large size.

The main clutch has metal-to-metal friction

surfaces, and is, as usual, fitted into the fly wheel. The speed-change-gear gives three forward speeds and a reverse, and is so arranged that a direct drive is obtained on the high speed. Nickel steel is used for the gear wheels, the axles, and the shafts. The foot brake and the hand brake act direct upon the hubs of the rear wheels, both internal and external brakes being fitted to them, as on the Wolseley racers. The center of gravity of the cars has been kept very low. The wheels are shod with Michelin tires specially manufactured in Great Britain, those for the driving wheels being 815 by 120 millimeters, and those for the front wheels 810 by 90 millimeters.

FRENCH COURSE CHANGED

While preparations were being rushed for the French eliminating race which is to be run May 20, information was suddenly received at the Automobile Club of France that the minister of the interior had decided upon reports from officials of his department that the original route of the Circuit des Ardennes, which is approximately 80 miles long, would be considerably shortened.

No especial reason was given at first and the unexpected information created a sensation among the members of the club and later among the interested manufacturers and drivers. Protests were made at once, but the officials of the ministry had made up their mind and would not argue the case. A hurried meeting of members of the sports commission of the automobile club was called and although the majority of the manufacturers had protested against the proposed change it was decided that owing to the short time which was available until the race was to be run, that the best plan would be to accept the government's decision.

On April 29 a meeting of protest was held and for a while characteristic French excitement prevailed, several of the members even going so far as to suggest that the French manufacturers withdraw entirely unless the government would permit the race to be run over the original course. Rene de Knyff finally

succeeded in convincing the others that it would be unwise to do anything else than to accept the condition imposed by the minister of the interior. He urged that to withdraw would be detrimental to the trade and industry and that to argue the matter would be a waste of time. It was further brought out that the new circuit was the same as the old one except that it was shortened, the officers of the government having found that there were too many thickly populated localities along the old route and too many dangerous stretches.

Much regret has been expressed that so much unnecessary work was done on the original route. Hundreds of laborers had been employed fixing up bad stretches, putting up fences, levelling the ground, and making curves less dangerous. Every day many of the drivers who will be in the race may be seen going over the route in racing cars. At intervals on the road racing encampments may be found. The Hotchkiss, Gobron-Brillie, Darracq and other outfits have established regular supply depots along the route.

There will be four neutralizations per circuit, or twenty-four all told. Inasmuch as there will be twenty-four starts and twenty-four stops beside the first start and the final stop, it will be necessary to take fifty times for each car. If all of the twenty-nine racing machines start it means 1,450 times to be taken by the timekeepers in the eliminating trials.

Another serious question has been agitating the officials of the Automobile Club of France—the question of time to elapse between the starting of the competitors. Many want the minimum to be 5 minutes, claiming that otherwise it would be very possible for cars to overtake others and be overtaken, as the road, in general, is not wide enough to safely permit more than two cars to run side by side. It is feared that accidents might occur if the starts are made at intervals of 2 minutes. The matter has not been finally settled. This and other details of the contest are being rapidly settled, however, and it is thought that the trial race will be run without hitches or confusion, despite its large entry list.

DIARY OF THE AMERICAN TEST

CLEVELAND, O., May 7—The American Gordon Bennett "elimination trials," held in Cleveland last Thursday, proved great disappointments to all concerned, as both the Peerless and the Winton cars met with accidents that threw them out of the running.

The tests on Clifton boulevard were witnessed by only a few enthusiasts, who were notified as to the place for holding the trial. The investigating committee arrived Thursday morning and it was not until after a conference with several prominent local men that the place for the trial was settled upon. Messrs. Morris and Butler immediately went to the Peerless factory, while the other two gentlemen accompanied Messrs. Winton and Shanks to the Winton factory. The two Peerless racers were taken over to the Winton factory, where they, with the Bullet II, were thoroughly inspected and weighed.

Owing to the fact that the second Peerless car had only just come out of the factory, it was decided to try out only the first car. This was illustrated in a recent issue of MOTOR AGE, but for the speed trials it had been altered by

the substitution of a coil radiator suspended below the front in place of the radiating tubes extending around the side, Mr. Mooers deciding that the latter were too much in the nature of an experiment to risk in a trial of this character.

On leaving the Winton factory Mr. Butler went with Oldfield in the Bullet, while Mr. Morris was with Mooers in the Peerless. The men were ordered to let out and not to stop until told to do so. Oldfield had the best of the start and was never headed, so there was no brushes or opportunities of comparing the speed of the two cars. The course was far from what could be considered a sample of road conditions. As a matter of fact it would appear that Glenville track would have been a much better place to demonstrate the speed and endurance of the cars, and in its present rough condition the track would have come much nearer to road conditions than Clifton boulevard, which is a dead level course about 5 miles in length and 80 feet wide, a considerable portion of it paved with asphalt, and the balance of macadam, having the same degree of hardness and, if anything, being much

smoother and faster than the asphalt portions.

A straight section of 3½ miles in length had been measured off on a portion of the boulevard where there was the least number of houses and cross streets. Up and down this piece of boulevard the two big cars tore at what seemed to be the limit of their speed, although both drivers have since declared they never let the machines out to their limit. In fact, it would seem almost impossible to do so, for the cars could hardly get under full headway in the 3 minutes or thereabouts required for the length of the course, and an attempt to turn on the street while at high speed would have meant certain destruction.

After Barney got accustomed to the trick, he did some hair-raising stunts on sharp turns, but Mooers was less venturesome and lost time at the end of every stretch. To a man up a tree it didn't look much like an endurance contest; it seemed to be more like a case of four men having a couple of fast cars at their disposal and taking turns at enjoying the sensation of riding at the rate of a mile a minute. Every once in a while the committeemen would change off which would necessitate stops,

and then they would go at it again. No one seemed to keep any record of times or how far they went, and, of course, with such turns and occasional unnecessary stops to let the committee change off, there was no possibility of making anything like records. Evidence of the failure to keep tab on the laps is shown by the fact that when interviewed at the Hollenden hotel in the evening, one of the committeemen stated that Oldfield had covered only 66 miles when his accident occurred, whereas Messrs. Winton and Shanks, who were interested spectators at one of the turns, declare that Barney made fourteen round trips, or 93 miles in 1 hour 45 minutes. If this is a fact, it would seem that the Bullet did about all that could be expected of it, as it had been generally understood that the trial was to be for only 100 miles.

Both the cars certainly showed remarkable speed possibilities. The Bullet especially maintained its reputation as a wonderful short distance car, for at times it was turning at close to 70 miles an hour. Alexander Winton claims to have timed one lap of 7 miles in 5 minutes 30 seconds, and one of the members of the committee after the trial admitted that either of the cars was capable of 75 miles an hour. Once while traveling at top speed Barney sighted a big black dog leisurely crossing the road ahead of him. The tooting of horns only served to confuse the animal and Barney had to negotiate one of his famous curves and only just missed a collision that would probably have meant death for two men. The committeeman who was in the car will not forget that incident in a hurry.

Mooers was the first to retire. The committeemen claim he went 51 miles, but Mooers thinks it was more. The car got to going bad and finally it came to a stop. Examination showed that the speed change gears had been wrenched and did not mesh perfectly. Mooers at first stated that a stone had been picked up due to the dust cover being removed. A more careful examination, however, disclosed the fact that one of the pistons had tightened so that it could hardly be moved. At the Hollenden hotel in the evening Mooers informed the MOTOR AGE man that the difficulty had been caused by one of the pistons being a trifle over size. On the previous road tests this had not been apparent, but after the car had become thoroughly heated the piston tightened and greatly retarded the speed of the car. It finally got so tight that the gears were forced out of position and then the car stopped; it had to be towed home. Mooers stated that he knew the other car had the same defect, hence he did not care to give it a trial after the accident occurred.

Oldfield's mishap was caused by the breaking of a pin on the pump connection, which threw the pump out of commission, causing the water to boil. Before the stop Barney's car looked like a steamer in cold weather as it tore up and down the boulevard. This accident had occurred in previous contests, so Barney claims, and he did not stop until it was absolutely necessary to do so. After the same had been stopped the Bullet cooled off and Barney went back to the factory under his own power. The breaking of the pin was a defect that can easily be remedied by replacing it with a stronger part, and it is claimed by some, that in a race a temporary repair could have been made; in any event the car could have been kept going by frequently replenishing the wa-

ter supply if stops had been taken for this.

After luncheon the party took a trip through the boulevard and park system and went over to the Peerless factory and made examination of the Peerless car. They left for New York early in the evening.

The members of the committee declined to give any statement for publication Thursday evening, although one of the gentlemen admitted that the cars had shown remarkable speed.

Before the committee left the Winton company sent a formal communication asking that the gentlemen remain until the next day in order that the Bullet be given another trial, but the committee declined to consider the matter.

Louis P. Mooers has not yet given up hopes that the committee will reconsider its decision and will give the cars another trial. He stated this afternoon that he intended leaving for New York on Tuesday and that he would use every argument possible to have the investigation reopened. He stated that he could easily alter one or both of the cars so that there could be no possibility of a repetition of the accident that occurred before and he expressed himself as satisfied that with another trial the Peerless would make a satisfactory showing.

When questioned on the subject, he admitted that he did not have much hope that the committee would change its opinion, but nevertheless he would make another effort. Incidentally he stated that he felt satisfied in his own mind that the committee would probably decide to withdraw the American team entirely from the contest and make no further attempt at the cup until American cars could be built that would demonstrate beyond question of a doubt that they possessed speed and endurance sufficient to win in a race of this character. He stated that with this in mind he would place his entry at once for the 1905 contest and he would start work this summer on a special car designed for that contest, "and you can wager," said he, "that the car will be thoroughly tried out before it goes into any official trials."

A. C. A. HESITATION

New York, May 8—Decision as to the make up of the American team in the international cup race or whether this country will be represented at all in the coming contests on German soil will be made not later than Wednesday, but probably on that day following the meeting of the governors of the Automobile Club of America, to which the racing committee will report the result of last Thursday's trials of the Winton and Peerless candidates at Cleveland and the test of the Christie aspirant yet to be made.

Walter Christie's car will probably have its trial Tuesday. It will be taken quietly to some suburban road, probably on Long Island, that day and put through its paces in the presence of the committee, its advisers and a coterie of newspaper men, who may be trusted to be given the tip as to time and place in advance.

Dave Hennen Morris, of the committee; S. M. Butler, secretary of the club; William P. Kennedy, whose business is that of consulting automobile engineer, and William C. Gotshall, whose precise function at the trials beyond that of a mere curiosity seeker has not been made very plain, returned from Cleveland Friday morning. A meeting was held that day which all these gentlemen attended and at

which George Isham Scott, also of the committee, and President Scarrett, ex-officio, were also present. O. W. Bright, chairman of the committee, is abroad. W. G. Brokaw, the other member, did not attend.

The result of the meeting was the sending of the following telegram in duplicate to Alexander Winton and Louis P. Mooers: "Report made to racing committee, which has decided to have no further trial of your car. Committee will announce decision not later than Wednesday." This was by way of reply to the request made at Cleveland by both candidates for a further trial of the cars coincident with the Christie test.

It is surmised that the decision will be against sending either the Winton or the Peerless car to Germany, it being inferred that had the committee considered the accidents that put an end to the Cleveland trials mere unimportant detail defects, easily remedied and not seriously affecting their ultimate chances of lasting the cup course and covering it in creditable time, they would gladly have afforded their owners a chance to make the trifling repairs needed and demonstrated the real worth of their racing machines.

As a matter of fact, it was strongly hinted that the press dispatches did not tell correctly, or at least all, that had happened to the cars during their trial. The newspaper men were forced to get their information from outsiders and in part from those naturally and excusably interested in minimizing the breakages that had occurred and the failure of their cars to make good in speed and endurance beyond dispute. The whole story, from the point of view of the investigators, will be told in the committee's report to the governors. The authority and responsibility of the decision to be announced will rest with the committee.

Patriotic considerations, regard for the committee's good intentions and the embarrassing position in which Mr. Morris and his associates find themselves this year will probably, and very properly, prevent the appearance in print of the full story of the trials and their results. The patriotism and pluck of Mr. Mooers and Mr. Winton in the face of last year's failure in again making an attempt to have this country represented in the international contest deserve and receive only the highest commendation, and it is felt that every possible consideration should be shown them. The regret is very generally expressed, however, that more American makers did not see it their patriotic duty and to their personal interests as well to build cars in competition for places in the team that the United States might have had the benefit, at least, of the choice of the best of many makers, instead of being restricted to the chance success of only two of them, however able and prominent as designers and builders.

The A. C. A. has shown no signs yet that it fails to realize its responsibility to the sport and industry of the country in naming or rejecting would be candidates to the end the United States shall be creditably represented in the great contest or wait until its automobile builders in general shall really arouse themselves to the desirability of proving their ability to make cars that can go as far and as fast as any nation's, and that in speed and endurance in such a trial can demonstrate constructive success commensurate with the attainments of the American art in the matter of the manufacture of vehicles for mere pleasure use.

Leaving out of consideration the lack of



A PORTION OF THE CLEVELAND PARK BOULEVARD

general and practical interest of our makers in diverting their attention to this end from the building of purely pleasure vehicles and their failure to appreciate that cars built to succeed in the long and strenuous international cup contests will find a ready and big priced market, as high power touring cars will aid the competition with European makers of racing fame, and will altogether raise the standard of the American product, it seems opportune and only fair to call attention at this time to the serious handicap our builders labor under through the want of these great contests at home, and the absence of any opportunity to try out their high powered products at full speed over courses of extended length.

The practically absurd establishment of the Vanderbilt cup race as an annual late summer event and the throwing open of a trial course of adequate length and variety of road will furnish just the needed opportunity. The opinion is all in favor of its being made an event open to the world, to which the best cars and the cleverest drivers that Europe can furnish may come. It will establish a trial ground and a school in high power and speed cars we very much need. The lessons may be hard and bitter at the start, but they will be satisfactory

and are absolutely necessary for the advancement of the art in this country. In the end they will result in the development of a worthy and victorious team for the international cup race. American makers need but the chance to succeed. With tracks available for that sort of test they have turned out the holders of all the world's records at that style of going. With a long distance road course for their trials and

experiments and competitors to furnish comparisons and standards, American speed and endurance triumphs on the highway are as easily possible as have been their unrivaled successes on the track.

Mr. Vanderbilt is now due home from his Pacific coast trip. Announcement of the conditions, time and place of the 300-mile race for his cup may be expected in a day or two. Chairman Pardington has already submitted to the cup donor suggestions in outline for the big race.

TRIAL DISCUSSED

New York, May 9—Barney Oldfield arrived in town this morning. In a talk with a *MOTOR AGE* man he had a story to tell of the trials at Cleveland that is interesting. Barney will endeavor to get a hearing from the A. C. A. racing committee or an interview with some of its members, though he says this is not the sole object of his trip, as he expects to be allied for a while with the Winton local branch

as a salesman and demonstrator.

"Mr. Winton was somewhat astonished," said Oldfield, "to receive two letters from the committee announcing its intention to visit Cleveland and put the Bullet to a speed test over 100 miles of that city's suburban roads. We did not know of any such available stretch or circuit and jumped to the conclusion that we were to be asked to speed the Bullet over 100 miles of rough country roads. As the Bullet is a racing machine built for speeding on the track and to race over fine European macadams, such a test would have been unfair. Remember, the Bullet's muffler pipe only clears the ground by 3 inches. The Peerless

machine, being practically a comparatively low ground touring car, might stand such a test, and so have an advantage over us.

"When the committeemen reached Cleveland they went at once to the Peerless factory and rode over from there in the Mooers cup car across town. They asked us to take the same ride with the Bullet. This was impracticable, as our car has but one speed and with its open muffler would raise such a racket as to frighten horses by the wholesale. After a little talk the Glenville track was phoned. The answer came back that it was all plowed up and not available for driving over it.

"We then went out to the Clifton boulevard, where the trials were run over a 3½-mile stretch of asphalt, with runabout turns at each end. There were eight or nine crossings in the stretch, whose rises threw a car in the air and made high speed dangerous and almost impossible. As far as I could see there was little attempt to take our time. As I was making one of the turns, Mr. Winton told me to let her out for a round. I took the risk and did so. Mr. Winton timed the 6½ miles at 5:30. I think Mr. Butler also must have snapped a watch on me, as he was standing by with timer in hand.

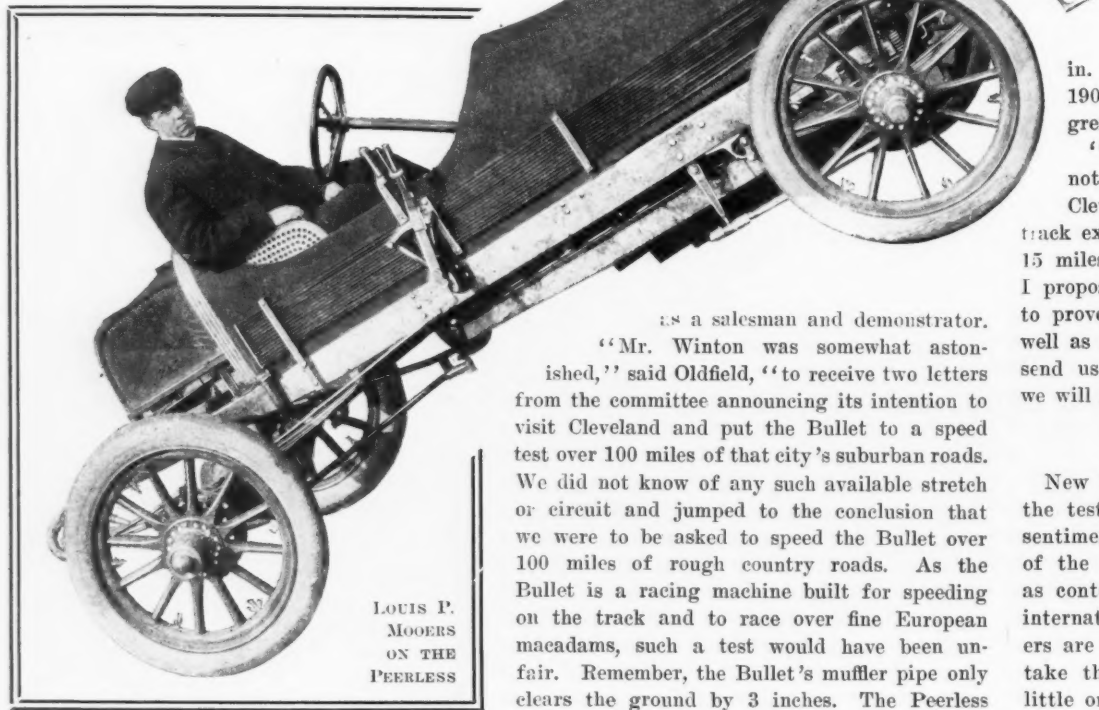
"I ran fourteen round trips, or 91 miles, without stop or touching my engine, before the water gave out and my engine heated. This was the accident. One of the buckets backed up and sheared a pin in the driving gear of one of the pumps. This stopped circulation and the water boiled out. To show how trifling was the accident, Mr. Shanks got 5 gallons of water and poured it in and I ran back to the factory without trouble. Such an accident happening in the cup race would not stop me. There are twelve controls in the 80-mile circuit where I could get water from the attendants I would have posted at each control.

"I think the Bullet the fastest car in the world. I am sure that even on the Coney Island boulevard it could show a mile in close to 40 seconds. I am confident it could last the distance. Since the Ormond meet the car has been greatly strengthened, fully 100 pounds in weight having been added. The frame has been strengthened. The crank-shaft has been thickened a quarter of an inch and the rear driving shaft has been enlarged. The axles have been strengthened and new bearings put in. The car has also been fitted with the 1905 Winton carbureter and oiler, both great improvements.

"At Ormond they said the Bullet could not run 50 miles. I drove it 91 miles at Cleveland. I never had occasion in my track exhibitions to drive the car further than 15 miles. At my first public trial after this I propose to run the Bullet 100 or 150 miles to prove to the public that it is a stayer as well as a sprinter. I hope the committee will send us to Germany. If it does I am sure we will do the club and the country credit."

THE CHRISTIE TRIAL

New York, May 10—There is today, after the testing of the Christie racer, a decided sentiment favoring the sending of all three of the American team entrants to Germany as contestants in the James Gordon Bennett international cup race. Inasmuch as the makers are willing to assume the expense and to take the brunt of possible failure, there is little or nothing for the A. C. A. to venture.

LOUIS P.
MOOERS
ON THE
PEERLESS

Failure to win or make a good showing in the big race, would at the utmost affect only the builders of the competing cars. On the other hand the scratching of the American team would be a sweeping acknowledgement of the weakness of American cars generally in the field of road racing. The committee promises its definite decision tomorrow—Wednesday.

The Christie car was tested late this afternoon over a 5-mile stretch of the Merrick road on Long Island, where the trials of last year occurred. The trial was conducted by Committeeman Scott and Technical Expert Kennedy. Four reporters and a half dozen spectators were also on hand. The weather was muggy with spasmodic rain. The course was only in fair condition.

Mr. Scott rode with Walter Christie from Garden City to Jericho and thence to the selected course. Altogether 38 miles were covered, of which 33 were driven at high speed. The 5-mile course was covered four times with the following respective times: 6:14 1-5, 6:08, 5:54 and 6:16. This gives a total of 24:32 1-5 for the 20 miles, which is at the average rate of 1:13 3-5 per mile, or 49 miles an hour.

The car ran smoothly and impressively throughout the trip and without a hitch save a little oil feed trouble. Mr. Christie claimed much greater speed possible and asked the privilege of another trial tomorrow, but this was said to be impracticable by Mr. Scott. As it is, however, the machine made an excellent impression on all present by its obvious strength of mechanism and its smooth running. Mr. Scott says that there was no vibration and no pounding of the engine or any signs of its being strained by the severe shocks it would naturally receive on account of being on the front axle. Coil springs and air cushions at each axle end are used to dispel vibration.

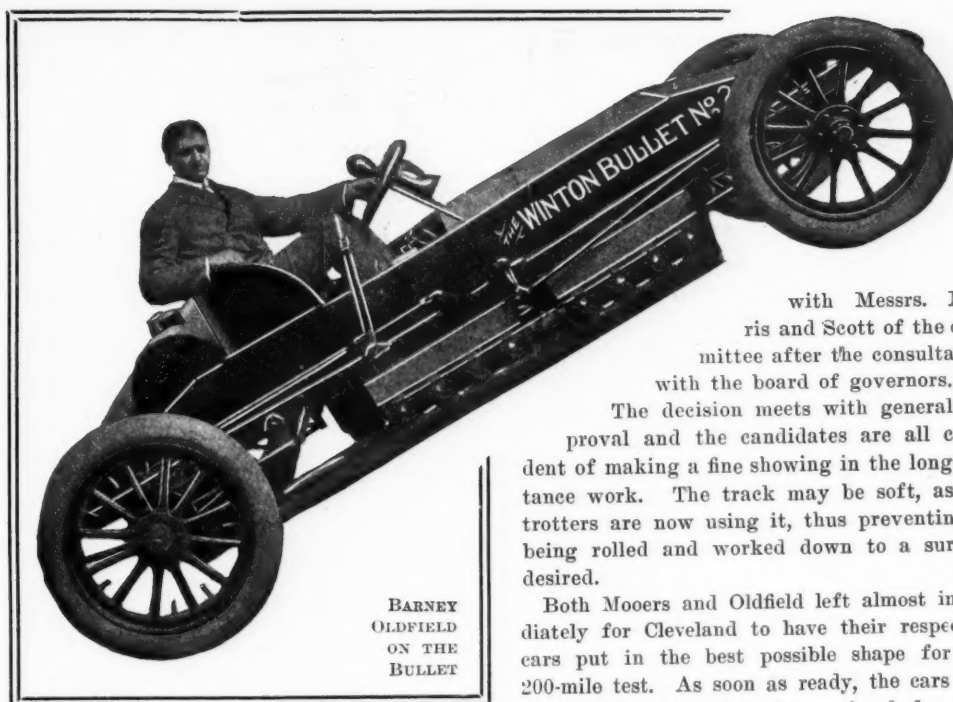
Mr. Kennedy, after the trial, said that the design and construction, while entirely original and somewhat revolutionary, were perfectly practical. The machinery is especially stout, being of nickel steel and manganese bronze.

Walter Christie was hardly in fit physical condition to run the car over the road at its best speed on account of having worked five nights to get the needed remodeling finished in time.

At the last minute the committee ordered the foreign carburetor replaced by an American one and a Kingston carburetor was temporarily fitted. There was a long delay in reaching the rendezvous and a puncture caused by a spike picked up necessitated pushing the car the last mile to the hotel. During a preliminary running of the motor carburation troubles were apparent, but made no appearance during the actual road trial, defective oil feed being then the only noticeable trouble.

In discussing the general situation those present favored another trial of all three cars some time within the next 10 days. The speed of the Winton Bullet was generally praised and the broken pump pin accident considered of trifling import. Mr. Kennedy, in speaking of the Peerless racer, said the only trouble with it appeared to have been that Mooers had risked a too-tight fit of the pistons in order to insure a high compression. This can easily be remedied. Otherwise Mr. Kennedy was well pleased with the car.

The committeemen were reticent, but it could be seen that they were loth to give up the hope



BARNEY
OLDFIELD
ON THE
BULLET

of an American team and the prospect of another trial seemed rosy, even should the cars not be accepted on the basis of the trials just completed.

AMERICANS GIVEN ANOTHER TRIAL

New York, May 11—Telegram—Only a few hours ago there was a cloud of doubt as to whether America would be represented in the cup race, and anxiety was written on the faces of all interested in automobiling in this country.

That doubt has now been removed—the cup candidates will have another trial next week, Thursday, May 19, at the Empire track in Yonkers.

After the return of the examining committee from Cleveland, where it saw the Peerless and Winton cars tried out, it hid itself in consultation with the board of governors of the Automobile Club of America.

The makers interested made an earnest appeal for another trial, claiming they had gone to heavy expense to build the cup cars and that in the trials only small defects developed, such as could be very easily remedied.

Strong pressure was brought to bear on the committee and the board of governors, with the result that another trial was granted. The event will take place in the morning and be over a distance of 200 miles, in 30-mile runs, followed by quarter-mile controls, in which cars must stop not less than 3 nor more than 5 minutes.

Any supplies other than gasoline and water, must be taken on outside of controls; the only acts permitted inside controls will be taking on water and gasoline.

Messrs. Mooers, Christie and Oldfield fixed their own conditions in conference

with Messrs. Morris and Scott of the committee after the consultation with the board of governors.

The decision meets with general approval and the candidates are all confident of making a fine showing in the long distance work. The track may be soft, as the trotters are now using it, thus preventing it being rolled and worked down to a surface desired.

Both Mooers and Oldfield left almost immediately for Cleveland to have their respective cars put in the best possible shape for the 200-mile test. As soon as ready, the cars will be hurried eastward to be on hand for next week's event. The Christie car will be looked over and ready for the event, but will be put through a few private trials before the final trying-out next week.

When Barney Oldfield was seen by a MOTOR AGE man he expressed not only delight but his thanks at the outcome, for Barney's one ambition has been to get into the big race. "I'll stake my reputation that the Bullet will not only prove its speed, as it has done," said he, "but will also show its staying qualities. By the next trial and for the big race the car will have no defects, mark my word."

Mr. Mooers was naturally pleased to think that, after all the time and money he had put into the Peerless, he had at least a show to have it in the big race, and said so.

Walter Christie, when questioned over the phone by the MOTOR AGE man said that he was much gratified over the new chance to be given the entrants to demonstrate the fitness of their cars. "My machine is much faster than she showed yesterday," said Mr. Christie, "and I am confident that next week I will be able to drive it fast enough to earn a position on the team. The car runs steadily and despite its unusual construction may be relied upon to stand up under hard, continued running."



VIEW IN CLEVELAND PARK SYSTEM

MOTOR AGE

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GROWTH OF MOTORING

ACCORDING to official information given out by the French finance administration, there were 19,886 automobiles in use in France during 1903. Of this total, 4,510 were in the Seine department, in which Paris is located, and 4,000 of these cars were reported to be in the French metropolis. Compared to the number of cars owned during the previous year, the total is almost three times as great, the figures for 1902 being 7,260, whereas in 1899 there were only 1,672 automobiles owned in France.

The motor bicycles and tricycles show also a remarkable increase, the total number owned in 1903 being 19,816, compared with less than 10,000 in 1902. Paris and the department of the Seine are at the head of the list with a total of 4,264, of which 3,634 are owned by Parisians.

These figures bring out several interesting and important facts.

Of course the most obvious is the remarkable increase in motoring in a year's time. But this is not the most important, because it is only an illustration of a fact that is taken for granted the world over.

There can be no doubt of the growth of automobilism. Statistics are not necessary to prove it. It is apparent everywhere, even to the most casual observer of the progress of the industries and the changes in the customs of the people.

Of greater moment is the fact that there were not so many automobiles in use in France in 1903 as in the United States. Even with due respect to the difference in population a natural conjecture would be that this great producing country—the nursery of the industry—would be the greatest using country now; that the number of cars in use per 1,000 of population would be three or four times that in England or America.

Enough is written of automobilism in France to warrant the layman to believe that horses have been driven from the streets, almost. No such condition exists in France. The growth of automobilism is there about on par with its progress in other countries. France as an automobile center has been advertised by its spectacular motoring and the world's idea of its position in the

field of automobile usage has been thereby greatly augmented.

Just so in the palmy days of bicycling, great advertising, great talk and great racing teams created a general impression that a few certain bicycle factories were about the biggest things on earth. In reality some of the much advertised factories would have made respectable additions to other plants about which there was much less talk.

Advertising, especially of the shouting variety, is a great thing. It has made the world believe that France is a hot-bed of motors—that every third vehicle on the boulevard is a 90-horsepower racer. France certainly is a hot-bed of motoring, but no more so than England and the United States. The germ has attacked the whole human race. French blood is no more attractive to it than Anglo-Saxon.

Paris, the mecca of automobilists, had in 1903 but twice the number of automobiles in use in Chicago, only a slight advantage in number per thousand persons. Los Angeles, Cal., probably possessed a greater number per thousand persons than Paris.

Where the demand is, there will the supply be. The producing ability of the United States will necessarily equal the increase in the use of the motor car. France cannot hope to be always the producing center of the world. The demand in other countries will surely and steadily even the ratio between use and production and there is every indication that the United States will eventually lead in both.

Another and almost equally important fact is brought out by the figures of the French bureau. This is the equalling by the motorcycle of the total number of automobiles.

Here is France with fewer automobiles than the United States, but with about ten times as many motor cycles.

Why?

Simply because France has roads which render motor cycling enjoyable.

The motor cycle is popular in England also. England has good roads.

It has not been widely introduced in the United States. The United States has abominable roads.

Roads or no roads, the automobilism interests of this country are equal to those of any other. Given good roads, and they will be enhanced at a bound in a marvelous degree. Then add the encouragement to motor cycling and the United States becomes the leading nation in all affairs motoring.

The industry will follow the flag. The flag is the banner of improved highways.

AMERICAN REPRESENTATION

FINAL decision as to whether America will have a team in the James Gordon Bennett international cup race has been deferred until next week.

The Winton, Peerless and Christie cars will each be given another test and possibly one, two or all may be accepted as cup challengers.

This is a wise move on the part of the board of governors of the Automobile Club of America.

America cannot afford to "lay down" in this matter until it is absolutely proven that the cars are not worthy to represent us.

There is a strong likelihood that the machines, one or all, are good enough to give us a creditable representation.

A thorough test to determine the qualities of

the cars more definitely than was done at the tests just completed is due the cars and their builders and drivers.

Then also it is an open question if it would not be better to take a chance with doubtful cars than to slip out of the contest altogether.

We were beaten badly last year. We said we would come again and keep on coming.

There is honor in being honorably beaten. There is little of anything in "laying down."

It certainly seems worth while to take a chance. There is no use in declaring ourselves out of a race before it is started.

INCORPORATING THE N. A. A. M.

THE members and executive committee of the N. A. A. M., which now carries the letters "Inc." after its name, performed a rather remarkable feat on Wednesday of last week. Commencing at 10 a. m. five meetings were held, the affairs were transferred from the old association to the new, and yet, despite an adjournment of 2 hours for lunch, etc., etc., the gathering dispersed before 4 p. m.

Two conditions were necessary, namely: Complete harmony and well lubricated arrangements. Both prevailed, especially the lubrication, and it is questionable whether it would have been possible to have put through so complicated a piece of business in better style or in shorter time.

First, there was a meeting of the incorporators of the new association, who elected to membership all of the concerns which had consented, in writing, to the change. Next came a meeting of the members of the old association, to agree upon conditions of transfer of its affairs to the corporation, and to instruct the executive committee how to act in the premises.

Then came a meeting of the executive committee, which prepared a proposal to be submitted to the corporation. Next, a general meeting of the corporation to vote upon the acceptance of the proposal and to elect an executive committee. Finally, a meeting of the new executive committee to elect officers and agree to the proposal made by the old association and to carry on its work.

It was pure formality from beginning to end. All the necessary resolutions—and there were a great many of them—had been prepared in advance, and arrangements made with the members and committeemen to introduce them. At no stage of the proceedings was a dissenting voice raised or dissenting vote cast. It was a pretty example of the facility with which a body of men can work together when satisfied that all are working for the common good, and proved that, since the occurrence of the last annual meeting, the members have grown to understand each other better.

The association, as now constituted, is one of individual representatives of companies and firms instead of the companies and officers themselves, as heretofore. This is necessary because, under the laws of some of the states, it is not lawful for one corporation to become a member of another. In all other respects the plans are practically the same as before.

Membership in the association will hereafter mean something. It is said that it will be the policy to admit only those makers who are known to be successful producers. There were at one time members who could hardly be so classed, but time has weeded them out, and today the association is composed almost exclusively of makers of unquestioned repute.

JUMP

The farmers of St. Louis county, Mo., say that they cannot go to church on Sunday because their horses are frightened by the automobiles. Missouri farmers are a great lot. First they secured the passage of a state law forcing automobilists to pay heavily for the use of the public highway, and now they are kicking because the motorists avail themselves of the privilege they purchased.

It would please some advertisers if trade papers reconstructed their business and made it customary to sell the reading pages and throw in the advertising pages for good measure. A few would like to have both reading and ad. pages given to them, while still others would probably be pleased with a chattel mortgage on the paper.

Ten or fifteen years ago ministers were prone to denounce Sunday bicycling. Now a New Jersey preacher has started the ball rolling in a crusade against Sunday automobiling. In the very face of this comes the newspaper information from Port Huron, Mich., that "All the automobiles in Port Huron were out on Sunday."

The Chicago Automobile Club has 300 members. On its club run to Indiana Harbor last Saturday three cars started; one went the whole distance, one two-thirds of the way, and one one-third of the way. Thus it may be calculated that the club had two-thirds of one per cent of a club run.

There must be a prize in Iowa for the most stringent automobile ordinance. In the Ottumwa ordinance, now pending, is a provision whereby an automobilist approaching any other vehicle from behind must remain behind or turn into a side street if the team ahead becomes frightened.

Express officials at Rochester, N. Y., had recently left in their care a package which was thought to be an infernal machine. After due precautions were taken it was opened and found to contain a spark coil. This business of automobilists scaring the community to death must be stopped!

Praise the good, kind alderman from Chicago's elite suburb, Evanston, who proposes to have the speed limit for automobiles raised from 8 to 12 miles an hour. But does he intend to raise the penalties for violation of the new ordinance in proportion thereto?

Only ugly chauffeurs can get jobs in London. The good looking ones have wrought too much havoc among the hearts of wives, daughters, etc. The owners of the cars must be a homely lot to be afraid of such competition.



A French doctor says that the excellent quality of M. Rigolly's brain had more to do with his recent racing success at Nice than did the excellence of the big Gobron-Brille he drove. This puts Rigolly in the embarrassing position of being compelled to win all the time lest he lose his mind.

Wonder if it does a farmer's heart good when he reads about automobile tour committees prowling around the country looking up "best routes," "available roads," etc.? Wonder, also, if he thinks he's saving anything by having such thoroughfares?

That White mountain track scheme has fallen through, temporarily, at least, owing to the obstinacy of a railroad president. Senator Morgan should not be balked by a little thing like a railroad president.

The lay citizen of Chicago thinks he has to dodge a good many automobiles and motor cycles—about 2,000 when they are all out. Parisians have in the neighborhood of 8,000 with which to contend.

The numerous automobile parades that have taken place all over the country ought to be convincing proof of the popularity of motoring and the rapid growth of the industry.

An automobilist has been arrested for driving on the sidewalk. It seems as though almost every feature of the history of bicycling is to be repeated in automobiling.

Pretty soon a city without an automobile school will be considered behind the times.

The Kansas farmers haven't disciplined an automobile owner for nearly a week.

Say, Holland, who is this Schwartzkoffski you are talking about all the time?

Some automobile factories are as backward as Spring herself.

SPARKS

Henry Fournier declares that he has retired from automobile racing. He says he has had his share of the glory and believes that there are enough other good drivers in the country to keep up the fame of France. Nothing like having a "hunch" while there is still time to get out gracefully.

The president of the New York Coaching Club says that automobiles are "common" and that for the "400" the coach is the vehicle par excellence. It's a wonder the "400" has not discovered that the wearing of clothes is abominably "common."

The near future will bring, not a uniform speed law, but one which shall provide that automobiles shall be run at a safe and reasonable rate of speed, according to circumstances and conditions, with the burden upon the operator.

The manipulation of cars in parade events has shown the folly of practically minimum speed limits and as a result laws and ordinances are being so altered by observing and progressive bodies as to permit increased speed.

In passing the Hill-Cocks bill, the New York legislature should have gone a little farther with the penalty clause and provided that for a fourth offense the offender should be required to commit the entire bill to memory.

Augustus Post has headed southward through Illinois looking for the best road to St. Louis. He should be followed by a relief expedition, supplied with a generous quantity of rope and blocks and tackle.

Some of the French cars at the world's fair have plates on which is printed "Built for American Roads." If the plates read "Built for American Money" they might be more nearly truthful.

It is all settled now. The Hill-Cocks law is in effect. How nice it is to know that this legislative business has been finally given the finishing touches!

It is all settled now. The Hill-Cocks law good in Salt Lake City, Utah. This is funny; the trade ought to be mainly in wagonettes.

Because there have been no failures among automobile manufacturers for five or six weeks is no indication that summer is over.

The country club house is becoming popular among automobile clubs. The marriage license clerk will be busy next fall.



PITTSBURG DEEPLY IN IT

Motoring from the Standpoint of Business and Pleasure Receiving Most Respectful Consideration in the Smoky City—Already Over 600 Owners of Vehicles—Bus Lines Being Inaugurated

Strange it is that in Pittsburgh—the dirty, smoky city, noted for its steep hills and sharp curves, with narrow, crooked streets and limited park areas—the automobile should have dared to enter; but it did, and if anyone doubts it he has only to consult the 600 or more owners of motor vehicles who are enthusiastic adherents of the sport. Or he may stand on any of the principal streets for a few minutes and see the great delivery cars of the big stores and breweries speeding up the sharp grades with loads that would balk three Pennsylvania teams. Or note the growth of the Pittsburgh Automobile Club, which from a humble beginning 2 years ago has sprung into a thrifty, energetic organization of over 200 members, among whose number are included many of the wealthiest men of town.

It was chiefly through the efforts of these men that the automobile was first introduced in Pittsburgh. They were tired of the abominably poor street car service which is Pittsburgh's standing disgrace the world over. Carriages were no novelty; quick, easy transportation from homes to places of business, something that would carry them spinning around the city after business hours and on holidays—that was what they wanted, and they found it in the automobile. In the last 5 years thousands of dollars have been paid for automobiles in and about Pittsburgh, abundant evidence that for pleasure and business the machine is a growing favorite.

At the head of the wealthy motorists stands Henry C. Frick, today the most successful iron and steel man in the United States. Mr. Frick was from the first an enthusiast in the sport. Year after year he has sought and purchased better machines. Today he owns two Mercedes cars, one a 40-horsepower, and the other, which Mrs. Frick drives, a 32-horsepower. His latest purchase is a Mercedes car whose chassis was made to order in Cannstadt, Germany, and whose body came from Paris. The machine is of 65 horsepower, with a body 15 feet long, and it will seat seven passengers, the seats being individual. The car is painted red, picked out with gold leaf, and is a model of costly automobile comfort.

Thanks to F. T. F. Lovejoy, another multimillionaire, whose fortune was amassed in the Carnegie Steel Co., Pittsburgh can boast of probably the finest automobile stable in the country, costing \$175,000. It is built of dark grey Norman brick, set in grey mortar, and so laid that the bricks appear to be in a frame. The stable is 172 by 88 feet and has a loggia on the second floor. Mr. Lovejoy has owned more than twenty big machines and now has in his garage a 6-horsepower Pierce Stanhope, an electric brougham, a 35-horsepower Peerless, a 24-horsepower Peerless, a 24-horsepower Pierce, a 16-horsepower Peerless, two 6½ horsepower Pierce machines, and an electric Stanhope. Every machine is housed in a dust-proof plate glass apartment, with every convenience for cleaning, adjusting and repairs. The chauffeurs are exceedingly well provided for, having a handsome sitting room on the main floor and a suite of rooms on the second floor that rivals

in its arrangement and finish many of the finest east end residences.

Reuben Miller, Jr., has been foremost in introducing the best machines in Pittsburgh and is prominently identified with the automobile club. Thomas Reed Hartley is another Pittsburgher who is rightly called an expert in automobile affairs, and Reade W. Bailey is ranked among the best-posted enthusiasts in the smoky city. Among other Pittsburghers who take great pride in their automobiles are: W. C. Temple, second vice-president of the club, who uses a Peerless; L. C. Phipps, a Peerless; George L. Carnegie, a Woods electric; Thomas H. Guffey, a Decauville; H. C. Fownes, a Pope-Toledo; W. H. Darley, a 28-horsepower Arrow; Charles Arbutnot, a Pope-Toledo; Wilson Arbutnot, a Pan-American; Joseph Reed, David Reed and George Reed, a Winton; Florence O'Neill, a Georges Richard-Brazier car; Mr. and Mrs. Ross Proctor, a Renault; G. E. Painter, an Autocar; Robert Piteairn, a Winton; E. H. Borntraeger, a Clement; H. W. Borntraeger, an Olds; J. V. Sloan, a Columbia; J. V. French, a Columbia; W. Linford Smith, a White; Mr. and Mrs. David Kirk, a Columbia; George Flinn, a Mercedes and a Peugeot.

Pittsburgh women are taking to the sport of automobiling rapidly and dozens of the leading society women of the city can drive a heavy car with as much grace as they can receive at a swell social gathering. Individual owners among them are no longer rare and the dealers in automobiles now rightly consult the blue book for names of women who are fond of out-door sports before sending out catalogues. It is proposed to organize a women's automobile club and within a year Pittsburgh may be treated to the spectacle of dozens of her most handsome women speeding away on her boulevards in a club procession.

Among professional men physicians have taken the greatest liking to the automobile, as it saves the care of a horse and gives much more enjoyment in tedious work. They claim that in 2 hours it is possible to cover as many calls with an automobile as they could do in a half day with a horse. In general, physicians are hearty in their praise of the automobile as a health giver and dozens of their patients have been led back to comparative health by taking the long tours that they advised or touring about the city a little every day in a leisurely manner. Business men of all kinds upon their recommendation are coming to use the automobile more and more and this spring are ordering more expensive machines than ever before.

It is estimated that over 600 private cars are owned in Pittsburgh. In spite of the general business depression, the outlook for a brisk trade was never so good. Banker Bros. have already delivered over fifty machines to city customers in the face of a season fully a month late, and have orders for fifteen machines now, which will be delivered by May 15. The Standard Automobile Co. has sold thirty-five machines, and other leading companies in the city have done proportionately well. The Pierce machine is a great favorite with late buyers,

and the Pope-Toledo is also selling well. The business this spring is noted for the number of high-priced machines sold. In the cheaper grades the Oldsmobile holds a first place.

The automobile is also coming into use rapidly among merchants for delivery. When the first delivery cars were bought all sorts of predictions were made that they would not succeed on the steep grades with their heavy loads. But as one after another outdrew and outdistanced the strongest four and six-horse teams, merchants, both wholesale and retail, began to buy, and now a heavy delivery car covered with mud from its swift run is no longer a novelty. The brewing companies have found them to be a great advantage. Some of the largest stores in the city also use them, among these being the great establishment of the Joseph Horne Co. When James McCleery & Co., of New York, move into their new skyscraper, which was built in Pittsburgh for them, next fall, they will deliver all their goods with automobiles.

As a means of travel in the suburbs and surrounding country the automobile has made wonderful advances in favor in the last 2 years. The rough, muddy roads of Allegheny and adjoining counties are a great drawback to such use, for it is almost impossible for any but the most experienced operator to guide a machine up or down the steep, crooked hills of western Pennsylvania in the condition they often are found. In spite of this fact suburban automobiling is increasing at a rapid rate. Sewickley, the most aristocratic suburb of Pittsburgh, numbers dozens of fond motorists among its citizens. Trips to the mountain resorts are made by automobile, members of the country clubs speed out to their club, golf girls gleefully drive the machines to the links, and the business man of the suburbs 10 miles or more from the city daily comes into town in his car instead of taking the tedious street car, the stuffy train, or subjecting himself to a dusty or muddy drive behind his own horse. Country towns are also contributing largely to the ranks of automobile buyers and city dealers are wisely catering to this class of trade. Usually the machines wanted in these places are substantial cars that can be bought at from \$650 to \$1,000. Last year towns within a radius of 40 miles of Pittsburgh ordered over thirty such cars from local dealers, and this spring this number of orders was booked before May 1.

The growth of the automobile sport in Pittsburgh is largely due to the enthusiastic and orderly work of the Automobile Club of Pittsburgh. Aside from interesting hundreds of wealthy men and women in the sport the club has endeavored in every way to throw around automobiling such restrictions as would make it justly popular from its safety. Reckless driving has been condemned in every case. The club has worked in harmony with the city authorities to get suitable regulations passed and has labored, often unsuccessfully, to secure better street and country roads. The city limit of speed is now 8 miles an hour, with a limit of 20 miles an hour without the city and 10 miles an hour on sharp curves. Dozens of the club members have taken long vacation trips together with their friends in automobiles and have thus made the machine the favorite way of getting to the coveted rest spot. This summer several parties are already planning to visit the exposition at St. Louis in this manner and one party is preparing to make the trip by water in a motor boat. The events of the

club last year were among the most popular in the season. The club races at Brunots island drew thousands of spectators, and its events on the boulevards lined these beautiful thoroughfares with sightseers.

The club now has 200 members. Its officers are: President, George Flinn; first vice-president and attorney, James Francis Burke; second vice-president, W. C. Temple; third vice-president, D. Herbert Hostetter; secretary, W. Linford Smith; treasurer, Reuben Miller, Jr. Among other prominent club workers are: Thomas Reed Hartley, Reade W. Bailey, Robert Pitcairn, Jr., Dr. P. J. Eaton, E. M. Byers, George L. Hailman, H. W. Urling, A. R. Neeb, Dr. John A. Hawkins and W. L. Elkins. Last year the club bought a fine property at Baum and Beatty streets in the east end and is now having erected a model three-story club house and garage. It will be in the midst of the largest automobile establishments in the city and where most of the club members can reach it from their homes by the boulevards or best residence streets in 15 minutes. Handsome club rooms, rooms for ladies, bath rooms, etc., and a library and smoking room are among the conveniences assured.

In addition to the regular automobile club there is a Pittsburg consulate of the American Motor League. It has a large membership and commodious club rooms at Highland and Center avenues, east end. The consulate is directing its every effort this year to getting better roads and streets, enforcing street ordinances, reducing bridge and road tolls and getting guide boards erected in dangerous places and at street intersections.

BIG BUFFALO PARADE

Buffalo, N. Y., May 9—The first run of the Buffalo Automobile Club for the season took place Saturday afternoon. The cars lined up at the city hall at 3 o'clock. There were seventy-eight cars in line, twice as many as attended any run last year. Mayor Knight, who expected to take part, was unable to do so on account of pressure of business, but the remainder of the leading lights were found in various touring cars along the line. The committee in charge was J. B. Eccleston, Dr. Parker A. Poole and D. H. Lewis. There was one or more cars of nearly every make sold in Buffalo, and the dealers made every effort to make as good a showing as possible. The route of the parade was from the city hall to Niagara street, thence to Delaware avenue, to Chapin parkway, to the Lincoln parkway, around the Delaware park meadow to the Humboldt parkway, to Main street, to the Terrace, to Franklin street, and to the city hall, where the parade disbanded, and the run afterwards to Depew was a go-as-you-please affair. Depew Inn was very much congested with automobilists. General Bull, superintendent of police; Commissioners Doherty and Rupp, and Senator Hill were under the special care of W. H. Hotchkiss, president of the club. Dinner was served shortly after 6 and by 8 o'clock the last car was on its way back to Buffalo. There is some talk of having the next run to Toronto, but at the present time American drivers going into Canada must deposit 25 per cent of the value of their cars or file a bond that the machine will be returned to this side, and for this reason trips into Canada have been few. The Buffalo club will communicate with the Toronto club and endeavor to arrange the matter.

SENSIBLE SPEED LIMIT

Californians Contend That Conditions Should Govern—"Reasonable and Proper" Will Do

Los Angeles, Cal., May 7—During the state convention of supervisors the Automobile Club of Southern California took the members of the convention as invited guests on a run from Los Angeles to Pomona and back. There were thirty-seven cars in the party when they started, but several met with mishaps during the excursion.

When lunch time had made itself felt, 159 people took seats in the dining rooms of the Hotel Palomares, and several speeches were made. Dr. Milbank Johnson, president of the club, spoke about good roads; A. P. Fleming, in his address concerning state legislation, created much enthusiasm by some logical remarks. He said that city councils and boards of supervisors were all wrong when they attempted to prescribe speed limits, and that was one of the chief reasons why the Automobile Club of Southern California had invited the members of the supervisors' convention for this automobile ride. "An automobile law is needed which would state that no person driving or in charge of an automobile should drive at a greater speed at any time than was reasonable and proper. This would cover all the ground and would make it a question of fact as to whether a rate of speed was proper. It would be easier to determine whether it was improper than to state positively if a machine was going faster than a stated rate."

Mr. Fleming also contended that it would be unreasonable to require an automobile to go as slow as a horse or a street car. A certain speed might be quite adequate for one and not at all for the other. Then, too, the conditions of the roads should be taken into consideration, and even with a speed permitted by law it may be found necessary either to go slower or faster. It was very much a matter of the natural conditions of the man driving the machine, rather than a question of formality and regulation.

In concluding the address the secretary of the club urged the members of the convention to procure a uniform state law, which should be framed with the assistance of men who knew something about automobiles, which would tend to make it a good law.

BOSTON PLANS RACE MEET

Boston, May 9—The race committee of the Massachusetts Automobile Club has determined upon a list of seven events for its tournament at Readville May 30, with which it hopes to entice the best men in the automobile world to Boston. In addition it is proposed to add one or two special events. It had been hoped to bring about a meeting between Bowden and Stevens, but owing to the latter's objection to track work, that is impossible. The committee is now working on a match between Bowden and Hills. The former is willing and the latter, who tied Bowden for hill climbing records on Patriot's day, is undecided, owing to certain matters now under consideration. The events scheduled are as follows:

Five miles, open to gasoline touring cars not exceeding 24 horsepower, cars to be raced in full touring form and not stripped; first prize, \$100 in plate; second, \$50 in plate.

Five miles, steamer class; first prize, \$100; second, \$50, cash or plate.

Ten miles, open to all classes and all motive power, no restrictions; first prize, \$250; second, \$150, cash or plate.

Five miles, open to all members of recognized automobile clubs in New England; no restrictions as to weight or motive power, but cars are restricted to 30 horsepower or less; first prize, \$100; second, \$50 in plate.

Five miles, class A, gasoline vehicles between 1,433 and 2,205 pounds; first prize, \$100; second, \$50 in cash or plate.

Five miles, class B, gasoline cars between 818 and 1,433 pounds; first prize, \$100; second, \$50 in cash or plate.

Winners' race, open to all winners of previous events; first prize, \$100; second \$50 in cash or plate.

The Massachusetts Automobile Club has finally determined to hold a monster automobile parade in this city on the afternoon of May 28, just 2 days prior to its race meet, with a view of bringing the largest number of automobiles that has ever been assembled here, and also to emphasize to the public that the automobile is not the death-dealing vehicle that many suppose. Every style of machine will be taken care of in this parade, the divisions in which will be as follows: Foreign touring cars, of which Harlan W. Whipple, president of the American Automobile Association, will be invited to accept the marshalship; foreign runabouts, which will be in charge of Frank R. Peabody, vice-president of the automobile club; American touring cars, under the charge of L. R. Spence, of Newton, Mass.; American runabouts, in charge of H. B. Howard; steam touring cars, under the leadership of George R. Alley; steam runabouts, in charge of Louis S. Ross; racing division, in charge of H. L. Bowden; electric vehicles, under supervision of George B. McQuesten; trade division, in charge of Harry Fosdick. Several hundred cars are expected to take part.

SCHOOL A SUCCESS

Providence, R. I., May 7—The automobile school in this city, which was managed by the Y. M. C. A., has recently finished its course of instruction, and as this was the first time that the school has been installed here and also as it was the third school of its kind in the country, the results of the instruction have been awaited with a great deal of interest. There were seventy-four students registered, all of whom were in the gasoline class, there not being sufficient applications in the steam and electric classes to warrant instruction along those lines. On four different Monday evenings lectures were given, illustrated by lantern slides, by Parker H. Kemble, of Boston, and there were seven shop talks given by Dr. W. E. Decker, which were illustrated by drawings, sketches, models, and an actual machine, which was moved into the hall for the purpose of illustration. Three different garages were visited by members of the class on three different evenings, when practical work was illustrated as it could not be in the class room.

After the course was finished an examination was given by Dr. Decker, which was taken by forty of the students, and the marks were so hard and the standard so high that only fifteen passed it successfully. The reason for this large number of failures was given as the fear on the part of the instructors that incompetent men might go out from the school with diplomas and would afterwards fail to make good as efficient repair men and chauffeurs. The average attendance was sixty-eight. It is the intention of the officials of the school to give another course, which will be similar to the one just finished.

NEW YORK BILL IS SIGNED

**Governor Odell's Signature Makes the Hill-Cocks Measure a Law—
Provisions of the Bill as to Registration, Speed, Penalties, Etc.
—Some Good and Some Bad Points To Be Found**

Albany, N. Y., May 6—On Tuesday of this week Governor Odell attached his signature to the Hill-Cocks bill, thus making the measure a law in this state and doing away with all previous legislation regarding and firmly establishing and defining the rights of automobiles on the New York state highways.

For the next 30 days the secretary of state will be kept busy receiving applications for registration and in issuing the necessary certificates.

In the matter of registration, the bill provides that owners of vehicles must return their present certificate to the secretary of state with \$1 fee, and receive a registration seal with the old number thereon. Those not previously registered must make application and pay a fee of \$2. Chauffeurs are required to file a new application and pay a fee of \$1 if previously registered and \$2 if not previously registered. A badge furnished by the secretary of state must then be displayed always. Manufacturers and dealers are only required to register style of vehicle.

The number of the vehicle registered must be displayed on a plaque on the back of the vehicles as heretofore, numbers "to be in Arabic numerals, black on white ground," not less than 3 inches in height and each stroke not less than $\frac{1}{2}$ inch wide, and in addition the letters "N. Y.," not less than 1 inch in height, black on white ground; this, in addition to affixing to the vehicle the small registration seal furnished by the secretary of state. The registered number of the vehicle must also be displayed on the two front lamps "in separate Arabic numerals not less than 1 inch in height and each stroke to be not less than $\frac{1}{4}$ inch in width."

Non-resident owners need not register, if registered under the laws of the state of their residence, provided their number is displayed on the back of the vehicle substantially as provided by the New York law, and such number shows the initial of the state in which the vehicle is registered.

In the matter of speed, 20 miles an hour is

permitted in the open country; in cities and villages where the structures at the point in question are not devoted to business or where the dwelling houses for a quarter of a mile average less than 100 feet apart, 15 miles an hour is allowed, and elsewhere, in cities and villages, 10 miles an hour, except at crossings of streets and highways, where speed must not be greater "than is reasonable and proper, having regard to the traffic then on such highway and the safety of the public." On approaching and traversing "a bridge, dam, sharp curve or steep descent," speed must be reduced to 4 miles an hour.

Where the local authorities of unincorporated hamlets shall put up signs having the words "Slow down to 10 miles" and an arrow pointing in the direction where speed must be reduced, speed must be reduced to that rate per hour for not more than 1 mile, but signs cannot lawfully be put up, or if put up need not be regarded, unless restricted territory includes a postoffice and the houses for a quarter of a mile on each side of the postoffice average less than 100 feet apart.

The local authorities of cities and villages may prescribe local ordinances regulating speed, provided that villages cannot make the rate less than 10 miles per hour or cities less than that permitted to other vehicles; or enforce the same unless they shall put up signs indicating the rate, with arrows pointing in the direction where speed must be reduced, at every point at which a main highway crosses the city or village line and within such city or village wherever the rate changes. Nor can they make the penalties for violation of such ordinances greater or different for motor vehicles than for any other vehicles.

Park commissioners may prescribe rates of speed for the territory within their control if they shall also put up signs, with arrows, etc., at each entrance of a park or parkway and along the parkways, indicating the speed permitted.

At request or "on signal by putting up the hand from a person riding, leading or driving

a restive horse or horses or other draft animal," the vehicle must be brought to a stop, if both are traveling in the opposite direction, and be kept stationary until the horse or other animal shall have had reasonable opportunity to pass; in passing such horse or animal going in the same direction, the driver of the motor vehicle must stop and "use reasonable caution in thereafter passing such horse or animal." Only in case "such horse or animal appears badly frightened" or a request is made to stop the motor, need that be done.

In case of accident, the driver of the motor vehicle must stop and, upon request, give the name and address of the owner of the vehicle.

Failure to display a number, use of a fictitious seal or number, or, if a chauffeur, failure to register or wear a badge or the wearing of a fictitious badge, or a violation of the speed regulations, or failure to stop on signal, etc., is a misdemeanor, punishable, for the first offense, by a fine of not more than \$100; for a second, by a fine of not less than \$50 nor more than \$100, or imprisonment not exceeding 30 days, or both; for a third, by a fine of not less than \$100 nor more than \$250 and imprisonment not exceeding 30 days.

Failure to register, if an owner, or the violation of any of the rules of the road, etc., may be punished by a fine not exceeding \$25 for the first offense, of not less than \$25 nor more than \$50 for the second offense, and of not less than \$50 nor more than \$100, or imprisonment not exceeding 10 days, or both, for a third offense.

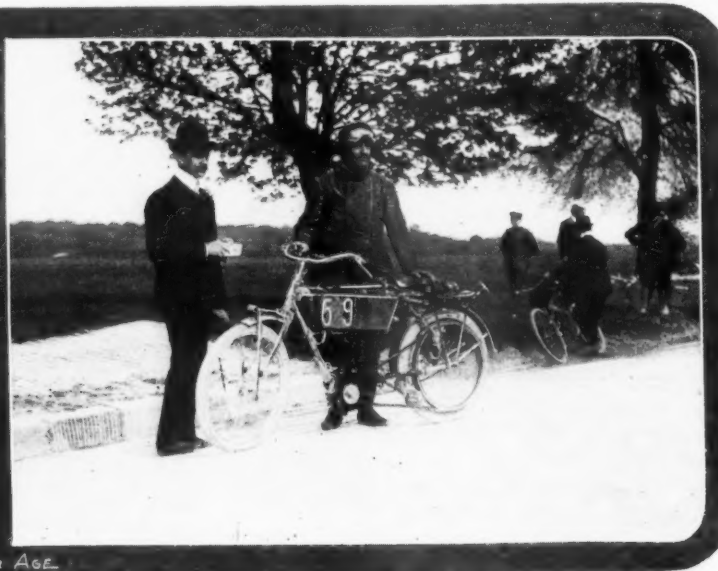
An owner taken into custody for violating any provisions of the law must be taken before the most accessible magistrate and given an immediate hearing, or, if that is not possible must be released on depositing with the officer arresting him or the officer before whom he is taken cash bail in the amount of the maximum fine for the offense with which he is charged, or by leaving the motor vehicle which he is

AFTER SYRACUSE SCORCHERS

Syracuse, N. Y., May 9—Residents of South Geddes street, between Delaware and West Onondaga streets, are aroused over the use of the Geddes street hill by automobile drivers for testing purposes. They have made complaint to the city authorities and are preparing to take further action to insure the safety of those who have occasion to use the street. Interested residents have measured the distance



START AT ONE OF THE CONTROLS



MOTOR AGE

FRENCH MOTOR CYCLE TEST

FOULON AND HIS BRUNEAU

between Delaware and Onondaga streets and traced an automobile, with the result that they found it to be going a little faster than the law allows. The occasion of the latest activity is the receipt of a circular letter from an automobile making concern which instantaneously aroused their ire. The letter referred to a complaint which had been made at the city hall and declared it was a necessity for the company to use Geddes street, on which its plant is located, for testing purposes. This letter will be presented to Commissioner of Public Safety Bowen to substantiate the claim that the street is used for automobile testing and a demand that he enforce the 8-mile an hour speed ordinance.

TRAPPING SPEEDY MOTORISTS

Hartford, Conn., May 9—A trap to catch unwary and speeding automobilists has been revived in the town of West Hartford by Constable Strong, a bewhiskered, much-uniformed, tin-starred cop who is charged by the automobilists of the county who have been taken in with a greater regard for the fees he and the justice of the peace rake off out of the arrests than he has appreciation of a duty to be performed. Louis P. Strong, driving a Cadillac, was taken in a bunch, and was held up by the constable who flashed his tin badge of office, an enormous star, and then told the driver, after learning his name and address and taking his number, that he would serve warrants on him later in the week.

Because of the peculiar location of the trap, which is at the foot of a long hill, and with no houses or cross roads, it is considered a rank injustice by the motorists of the county and efforts are being brought to bear to get the constable's buttons at the next election. Another trap has been located in the town of Berlin, but there is more justice in this one, since automobilists have been giving to speeding cars through the fine roads of the town, to the possible danger of many residents and school children.

HAS NO USE FOR TRAINS

Syracuse, N. Y., May 10—F. E. Moskovics, bound from New York to St. Louis in an automobile, left Syracuse at 6:45 o'clock last night for Rochester. Mr. Moskovics is traveling in a 15-horsepower car and is attempting to prove that it is easier to adhere to a schedule calling for a high rate of speed in traveling in an automobile than by trains. His determination is to prove that up-to-date touring cars furnish as reliable a mode of transportation as the best trains and he expressed himself as highly pleased when seen at the Yates hotel last night in having lived up to his schedule in making the trip from New York to Syracuse.

"I want to demonstrate," said Mr. Moskovics, "that people in a position to own touring cars will be independent of the railroads. A reliable and far more enjoyable means of travel is furnished by the automobile."

Like other tourists who have come up the state, Mr. Moskovics complained of the condition of the roads. "They are the worst I have ever seen," he declared, "especially between Hudson and Syracuse. I have traveled over roads in Italy, Austria, France, and in fact nearly all of the European countries, and the contrast between their roads and those of the Empire state of the United States is something remarkable. It is very surprising how the roads in this state have been so neglected."

MOTOR CYCLE TEST ENDS

French Two-Wheelers Have Hard Struggle Over Somewhat Bad Roads for Three Full Days

Paris, April 28—The motor cycle endurance run is ended and everybody connected with the trial is pleased. It was a severe test, not only for the machines, but for the drivers and officials, and the results are expected to be far reaching. At present the officials of the test are busy preparing their report, which will probably be full of figures and other valuable information for the manufacturer.

Of the fifty-nine starters on the first day, twenty-nine have returned to Paris up to date, and of this number nineteen have been examined officially and accepted for the final account. There are still a number of the small motor-driven bicycles on the way to Paris and it is expected that nearly three-quarters of the total number who started will finish the entire run of 750 miles.

There were very few serious accidents. One of them, however, was unfortunate and resulted in one of the competitors breaking his arm. During part of the long journey the weather was fine, while during other stages it rained so hard that some of the roads were rivers of slush. The efficiency of the machines was then thoroughly tested, and as but few had anti-slipping devices the track was the more difficult.

There were forty-eight starters on the second day, when the Tours-Bordeaux stretch was run. The distance between the two cities is 214 miles, and the two Minerva machines driven by Kuhling and Olieslagers reached Bordeaux ahead of the others. On the next day, Sunday, all the machines which had reached town were placed on exhibition in Alhambra hall, where several hundred people went to inspect them. The home trip was made in two stretches, to Tours and then on the next day to Paris. The Bruneau machine, driven by Foulon, was the first to reach Paris. It was closely followed by Denis, riding a Lurquin-Coudert, Bonnard on a Werner and Kuhling on a Minerva.

AUGUSTUS AND ROLLIN LUNCHING

Chicago, May 12—Augustus Post and Rollin T. White arrived in Chicago on Monday and remained until yesterday. The object of the eastern visitors was to inspect the roads from Chicago to St. Louis, Mo., and over which the automobile caravan will make its run to the world's fair. The two members of the committee on the St. Louis run were entertained at "lunching" by President Farnson of the Chicago Automobile Club yesterday. Mayor Harrison and other notables were among the guests.

MAKE UNIFORM STORAGE RATE

The dealers of Columbus, O., recently decided upon a uniform scale of rates concerning the renting, storage of automobiles during the remainder of this year's season.

Last year there was considerable annoyance on account of the difference in the charges dealers. At first it was thought that competition would prevent the establishing of a general agreement, but the continual complaints finally resulted in a mutual and satisfactory arrangement.

The renting rates are as follows: A five-passenger car for 24 hours, \$20; for 1 hour, \$5; for second hour, \$3. Car seating three persons, \$15 for 24 hours; \$4 for 1 hour and \$2.50 for second hour. Runabouts, \$10 for 24 hours; \$3 for 1 hour, and \$1.50 for second hour.

Garage charges, per month: Five-passenger car, \$15; four-passenger car, \$12; runabouts, \$10; electric vehicles, \$12; touring cars, dead storage, \$10; runabouts, dead storage, \$8. These are the charges when the automobiles are not delivered, but when they are to be delivered there will be an extra charge of \$3 for each of the four first named vehicles.

The storage on a touring car one night is 50 cents and only 25 cents for a runabout.

MILWAUKEE OUTDOOR SHOW

Milwaukee, Wis., May 7—An automobile show for Milwaukee. That's the great news of the hour, and those who have heard about it are already excited and as enthusiastic as if the matter is to happen in a week. But after all it does not matter now; we are on the list with Chicago, Boston, New York, Buffalo and others, who all have had their annual exhibition. This show, however, will be different from all the rest, inasmuch as it will be an outdoor affair, where the cars will be seen moving, an advantage which will be appreciated by many. The date has not yet been selected, but the show will be held after the automobile week at St. Louis, Mo., some time in August.

At a meeting between Dr. C. De Garmo Gray, James L. Drought, Theodore Jonas, Dr. Louis Fuldner, U. W. Iverson and R. C. Bates the question was discussed. Dr. Gray reported that the business men of the town were enthusiastic concerning the matter and that no efforts would be spared to make the event a success.

A number of prominent Milwaukee motorists who will take part in the club run to St. Louis will be asked to interest eastern automobile owners in the matter and urge them to make a run to this city. There will be speed trials and amateur races and other competitions during the show week.

CENTURY PLANT SOLD

Syracuse, N. Y., May 5—Automobiles were never sold cheaper in Syracuse than they were knocked down by Harold Stone, as trustee in bankruptcy of the Century Motor Vehicle Co., at a bankruptcy sale Saturday morning. Three, ready for use, were sold and together brought only \$705. The plant itself, exclusive of the real estate, brought \$8,350, making the total realized \$9,055. The appraisers' figures on the property sold were \$10,500.

The liabilities amounted to about \$75,000, and it is estimated that the creditors will receive not to exceed 8 per cent of their claims. The purchaser of the plant was H. F. Frevert, of New York city, who immediately transferred it to the Syracuse Supply Co. The latter company this morning opened the shop and will proceed to sell the unfinished automobiles, parts, motors, dynamos, machinery, tools and fixtures.

The sale was conducted at the company's building in East Water street and there were upwards of 125 people in attendance. Trustee Stone first offered the property in parcels and then as a whole. The larger sum being realized on the sale as a whole, that was confirmed by Referee Stone. The Syracuse Supply Co. anticipates a ready sale for the unfinished machines and parts to men who will construct their own cars.

AFFAIRS OF THE CLUBS



A RUN OF THE AUTOMOBILE CLUB OF SOUTHERN CALIFORNIA

Motor bicycle owners in Brockton, Mass., intend forming a motor cycle club.

The twelve owners of automobiles in Hamilton, O., have decided to form an organization, which will be given the name of Butler County Automobile Club.

The officers of the Springfield Automobile Club, Springfield, Ill., are: G. Westenberger, president; Edward Holtman, secretary, and Charles Wetterer, treasurer. The club has about forty-five members.

The annual parade arranged by the Louisville Automobile Club, Louisville, Ky., will be held May 21. All the owners of motor cars in the Kentucky town have been invited to participate in the parade.

The following officers were elected at the recent election of the Automobile Club of Ossipee, N. H.: President, Earl Stanley; vice-president, Chester Sinclair; secretary, Lisle Moulton; treasurer, Fred Ham.

At a meeting of owners and prospective owners of automobiles held in Danville, Ill., it was decided to organize an automobile club this week. Twenty-seven persons who were present at the preliminary meeting promised to become members.

Motorists of New Haven, Conn., met last week and took the first steps towards forming an automobile club. W. T. Dill was named temporary president and F. B. Bowers secretary. A committee consisting of J. H. Marlin, Dr. C. S. Lamb and A. Buckman was named to draft a constitution and by-laws. The sixteen automobilists present at the meeting have pledged themselves to become members.

At a meeting of the Binghamton Automobile Club, Binghamton, N. Y., held May 5, the following members were named directors: W. Sharpe Kilmer, J. M. Davidge, D. A. Smith, M. J. Corbett, C. E. Titchener, G. H. Barlow, F. H. Beach, Harry Bennett, E. E. Kattell, George F. Johnson and N. M. Pierce. The latter was also named temporary secretary, while J. M. Davidge was named temporary chairman.

At Tuesday's directors' meeting of the Chicago Automobile Club twenty-eight new members were admitted, bringing the membership list past the 300 mark. The house committee reported that the Evanston Boat Club house would be ready within the next 10 days, and that it would be officially inaugurated May 28. Dan Canary's garage at Wabash avenue and Hubbard court will be used for garage purposes by the club in addition to its own, the latter being entirely inadequate, while Canary's place can easily accommodate 150 machines. R. W. Spangler, formerly with MOTOR AGE, has succeeded E. Ed St. Peter as assistant secretary of the club. Last Saturday's club run to Indiana Harbor, Ind., was the longest attempted this season. About twenty members took part in the run, but only one car completed the entire run. Next Saturday's run of the club will be to the home of President John Farson, at Oak Park, Ill., where the participants in the run will be entertained. Saturday, May 21, the excursion of the club will be to Hotel Moraine, Highland Park, Ill.

Officers for the ensuing year were elected by the New Jersey Automobile and Motor Club, of Newark, N. J., as follows: President, F. R. Pratt; vice-president, Dr. J. R. English; J. W. Mason, B. M. Shanley, Jr., and G. H. Wood, directors. The club has 150 members and the membership roll is being rapidly increased. The club intends to thoroughly cover the New Jersey roadways with signs at all intersecting points, giving distances and the condition of the roads. A circular letter will be sent to every registered automobilist showing the objects of the club in this work and asking for co-operation. The committee in charge of this work is H. P. Cook, J. H. Dawson, B. M. Shanley, Jr., and J. H. Wood. One of the objects of the club is the enforcement of the law and members who are unjustly arrested are defended, the club acting as a unit in all things.

At a recent meeting of the New Bedford Automobile Association, New Bedford, Mass., the following officers were named: President, Richard S. Taber; vice-president, Albert B. Kenyon; secretary, Benjamin C. Tripp; treasurer, Joseph Nicklas. The members of the as-

sociation are principally former members of the automobile club which was formed 3 years ago. The new organization has twenty-one members and it is likely it will join the American Motor League.

At the annual meeting of the Worcester Automobile Club, Worcester, Mass., the following officers were elected to serve during this year: Asa Goddard, president; B. Austin Coats, vice-president; F. E. Frost, secretary; M. Percival Whittall, treasurer. An automobile race meeting was planned to be held Memorial day.

The officers of the Cincinnati Automobile Club, Cincinnati, O., who were recently elected, are: Val Duttenhofer, president; G. McMorris, vice-president; Dr. L. S. Cotler, treasurer and secretary; F. F. Bradley, member of the board of governors; Stanley Hooker, captain. The club named the following delegates to the international good roads convention, which is to be held in St. Louis, Mo.: Max Fleischmann, Douglas Neare, Frank Zumstein, Jesse Lippencott and F. C. Miller.

At the monthly meeting of the Dayton Automobile Club, Dayton, O., which took place last week, the following club runs for the season were arranged: May 10, to Osborn; May 24, Franklin; June 7, Tippecanoe; June 21, Germantown; June 28, Harrisburg; July 1, Xenia; July 26, Troy; August 9, Middletown; August 23, West Milton; September 6, Bellbrook; September 20, Springfield; October 4, Hamilton; October 18, Piqua; November 1, Cincinnati. Preliminary plans were made for the races which the club intends to give on the Fourth of July. Several well known drivers are likely to be invited for the occasion.

The scheme proposed by Dr. Julian A. Chase, president of the Rhode Island Automobile Club, which had for its object the installation of a club house to be supported jointly by the Rhode Island Automobile Club and the Massachusetts Automobile Club, has not been allowed to die out, for R. Lincoln Lippitt, chairman of the runs and tours committee of the Rhode Island organization, went out with a party to look over possible sites for such a club. It has been proposed to purchase a farm house on the main road about half way between Boston and Providence, refit it, and use it for the purpose stated. A number of communications on the subject have passed between the two clubs recently.

It is probable that an arrangement may be effected whereby the Cleveland Automobile Club, of Cleveland, O., may secure the privileges of the Dover Bay Club, a social organization which has a fine house and grounds on the lake shore about 10 miles west of Cleveland, and in return the Cleveland Automobile Club may grant the use of its rooms in the Hollenden hotel to Dover Bay Club members. The plan of an arrangement was proposed at a meeting of the executive board of the automobile club and Charles B. Shanks was named to visit the Dover club and report conditions. Mr. Shanks will make a favorable report. He will not suggest a merger of the two clubs, but the proposition to the Dover club will probably be for an arrangement covering one season.

Motor Car Family Trees



1904—Three-cylinder Tonneau
1904—Single-cylinder Tonneau
1899—Runabout
1901—Tonneau

1904—Standard Runabout
1898—Runabout
1899—Runabout

1903—Tonneau
1901—Boston Model
1900—Runabout
1897—The Patriarch

CADILLAC PLANT GROWS

Seven New Fire-Proof Buildings Now Being Erected—New and Novel Testing Scheme Is Employed

Detroit, Mich., May 9—Within a few months the Cadillac Automobile Co. will have one of the finest plants in the automobile industry. All of the buildings that were burned during the recent fire will be replaced by fireproof structures, in which steel, brick and tile will be used to the exclusion of wood. A sprinkler system and a Siamese hose system will be provided, which the officers of the company hope will enable them to have one of the safest factories in the country.

A large force of workmen has been occupied within the last few weeks in clearing away the piles of debris left from the big fire and the good weather has enabled it to make rapid progress.

When the buildings are completed there will be seven, having a total floor space of 275,000 square feet. Besides these new buildings the present machine shop will be reconstructed and also made fireproof, while two stories will be added to the southwest buildings, which had two floors burned out.

At present the company is back in the building located on Cass avenue. In the buildings of the Peninsular Mill Machine Screw Co., the Detroit Curling Club and two floors of William E. Metzger's automobile building, the bodies are being finished. Most of the assembling is done in the warehouses, which are across Cass avenue from the main building, where the automobiles which were saved from the fire are stored. Twenty-two complete cars are turned out daily, and according to Sales Manager Metzger there will be a steady increase in this number until forty will be finished each day.

A new testing device, invented by Alanson P. Brush, mechanical expert of the company, is said to be the most remarkable invention made in connection with the automobile industry within recent years. The chassis of the finished machine is placed so that the wheels operate on two cylinders attached to pulleys, which operate a large 8-foot blower. This fan is revolved and forces a draft of air through a square-mouthed tube pointing into the radiating system. The faster the machine is run on the drums, the stronger is the current of air. A tackometer is attached to the apparatus and records the exact number of miles run, while a speedometer is affixed for ascertaining the rate of speed.

Another scale device is for the load test and by this can be told exactly what kind of work the machine is doing with any number of persons aboard and for any number of miles. The new mechanical testing department is on the lower floor of the west wing of the building.

MOBILE PLANT OCCUPIED

The plant formerly belonging to the Mobile Co. of America, at Tarrytown-on-the-Hudson, near New York city, has passed into the hands of the newly-organized Maxwell-Briscoe Motor Co. This plant, representing an investment of over \$300,000, is equipped in a way that could hardly be improved upon. The Maxwell-Briscoe Motor Co. has a paid-in capital of about half a million, and expects to attain importance in the motor boat and auto-

mobile field. The product will be medium-priced motor boats and automobiles. Some of the models were built in Detroit last summer. Benjamin Briscoe, formerly of the Briscoe Mfg. Co., will be president of the Maxwell-Briscoe Motor Co., having disposed of his interest in the Briscoe Mfg. Co. J. D. Maxwell, well known in the automobile business, will be the general superintendent and technical man. Mr. Maxwell has been associated with several cars and companies. The company now has a force of men at work, and will have its product on the market during the coming summer.

RECENT INCORPORATIONS

Brooklyn, N. Y.—The Charles Seffrin Motor Carriage Co., capital \$30,000. Organized by Charles, Adolph and Annie Seffrin.

Burlington, N. J.—Burlington Automobile Co. P. Kearns, chairman; Ernest Watts, secretary; George Allinson, treasurer.

Brooklyn, N. Y.—Bedford Automobile Co., capital \$5,000. Directors, George Shields, T. P. C. Forbes and Jessie C. Forbes.

Milwaukee, Wis.—The Western Auto Supply Co., capital \$25,000. Incorporators, William M. Graham, Winfield S. Grant and Joseph B. Conrad.

Rochester, N. Y.—Trebert Automobile and Marine Motor Co., capital \$25,000. Directors, Henry Trebert, Sr., A. P. Schwab and Catherine Schwab.

Indianapolis, Ind.—Gibson-Short Cycle and Automobile Co. W. H. Brown, president; E. E. Short, secretary and treasurer; Cecil E. Gibson, general manager.

Newark, N. J.—Elberon Automobile Co., capital \$10,000. Incorporators, Hugo Elberon, of Elberon; George A. Breeze and Joseph V. Weber, of Newark.

Nashville, Tenn.—Southern Electrical Supply Co., capital \$20,000. Incorporators, Felix Schwab, W. K. Webb, F. O. Watts, W. O. Vertrees and W. M. Bowles.

THE PEERLESS AT THE HUB

A. E. Morrison, New England manager of the Peerless Motor Car Co., is delighted in now possessing one of the best up-to-date garages to be found in Boston, a garage which means much for the continued welfare of his trade, and of no small amount of importance to the Peerless men. This garage is one story in height, having been built especially for the company on plans and specifications approved by Mr. Morrison. It is situated on Ferdinand street, within speaking distance of the sales-room on Columbus avenue, and is entirely up to date in every particular. Although being but one story above the street level the building really has two floors, the basement, so called, being open in the rear and affording plenty of light for the workmen. The repair department is situated there, while ample opportunity is given for the storage of machines. On the street floor the room is 50 by 100 feet, free from posts, so that no trouble need be anticipated from moving machines. An office is located between the two main entrances to the garage, while locker room for the benefit of the patrons is large and ample, and the ladies' room is fitted up with all the conveniences so dear to the feminine heart. The garage will be open day and night, and since its opening seems to have jumped into popular favor.

SCHOOL FOR CLEVELAND

Young Men's Christian Association to Take Up Automobile Instruction in an Extensive Way

Cleveland, O., May 9—Beginning May 10 the educational department of the Young Men's Christian Association will offer a course in automobile instruction. The increase in the manufacture and use of motor vehicles in Cleveland has created a demand for a new line of mechanical knowledge pertaining to the subject. It is valuable to the hundreds of owners of automobiles to understand the principles of construction and operation of their machines. Young men with this knowledge are in demand as chauffeurs. The policy of the association's educational department has always been to furnish such courses of instruction as are of the most practical and direct benefit to members. The establishment of this course is simply a furtherance of this same policy.

The novelty of such a course will prompt many to inquire how such a subject will be taught. It will be somewhat different from the ordinary classes of instruction of the association. Lectures will form the backbone of the course. Supplementing these will be illustrations with gas engines, sectional views of machines, transmission gears, steering gears, charts and drawings. In addition to this, it is expected to give several demonstrations with different makes and types of cars complete.

The instruction will be in charge of George Case, of the Case School of Applied Science. Mr. Case is strongly recommended by the mechanical department of his school and was chosen from among several automobile men in town as the most practical and best fitted to teach. He has made an extensive study of automobiles, both from a technical and a practical point of view, and is thoroughly familiar with the various types of machines and principles of automobile construction and use.

The various automobile manufacturing companies of Cleveland have expressed a very friendly spirit towards the enterprise. The apparatus to be used in the instruction has been secured from local companies and those represented here. Through the courtesy of the Olds company of Detroit, the class will have the use of the sectional Olds car which was displayed at the various automobile shows last winter. Another machine similarly arranged for demonstration purposes, but representing another type, has been promised by the Toledo company. Other parts have been loaned by Cleveland companies and apparatus is available which will represent completely all the various types of automobiles. The class is open to outsiders as well as to association members.

CURRENT MISCELLANY

There has been completed at the factory of the Electric Vehicle Co., of Hartford, Conn., what is believed to be one of the largest automobiles ever built. This giant car, because of its shape, has been termed "The Whale," and it has a capacity of 56 passengers. The big car is being built for Blanke's coffee for advertising purposes and will shortly be shipped to St. Louis, where it

is to be used for sight-seeing purposes at the exposition. The Whale has a radius of 40 miles and will attain a speed with its complement of passengers of about 12 miles an hour. The car is driven with four motors, one attached to each wheel, and in addition there is a motor to aid the helmsman in steering the car. The seats and body protrude over the rear and front axles and the car is so wide that eight persons can sit comfortably on each one of the cross seats. The painting is particularly ornate and the body is in a variety of Scotch plaids.

The final meeting of the creditors of the I. A. Weston Co., of Syracuse, N. Y., which manufactured gears and automobile accessories, resulted in the filing of objections to a large number of claims before Referee in Bankruptcy Charles L. Stone Monday. One additional bunch of bank claims aggregating \$10,000 was put in and the referee declared that it was not right to hold off claims so long, necessitating the trustee making his accounts all over. This came up with a motion for allowances and was held.

Alderman Walrath, of Evanston, Ill., told the board of directors of the Chicago Automobile Club, Tuesday, that he would introduce an ordinance at next week's meeting of the Evanston board of aldermen, changing the speed limit to 12 miles an hour. He said that it was quite likely the proposition would meet with the approval of his colleagues. The president of Winnetka intends to introduce a similar proposition in his village.

The Michigan Automobile Co., of Kalamazoo, Mich., will soon have on the market a car of the removable tonneau variety. The motor is of the opposed type, 4 5-8 by 5-inch and rated at 12 horsepower. The wheel base is 78 inches, sufficient to provide a roomy tonneau. The design of the car is the joint product of General Manager Fuller and Superintendent Russell.

A Scotch automobile concern has recently shipped a number of double-decked motor buses to Freemantle, Western Australia. The vehicles have accommodation for fourteen passengers inside and sixteen outside. With a 24-horsepower motor the car develops a speed of twelve miles per hour.

In its official report the Society of Motor Manufacturers and Traders of Great Britain states that 165,000 people visited the Crystal palace show last February. The attendance was 45,000 more than last year.

An Oldsmobile was recently driven from Llandudno to London, England, in 10 hours 53 minutes actual running time, the distance between the two localities being 235 miles, making an average of more than 21 miles per hour.

LOOKING OVER THE ROUTE

Cleveland, May 9—Next Sunday George S. Waite, who is in charge of this division of the St. Louis exposition tours, together with E. Shriver Reese, George Collister and W. F. Sayle, of the Cleveland Automobile Club, will take a run to South Bend, Ind., to look over the course, select meal places and arrange for supplies of fuel and for repair work. Mr. Waite will prepare a careful description of all the interesting points along the route, which will be embodied in the guide book supplied to those that participate in the tour. At present the roads in this section are in pretty fair shape.

N. A. A. M. CONSTITUTION

Newly Incorporated Body Meets and Adopts Constitution and By-Laws for Its Guidance

The constitution of the National Association of Automobile Manufacturers, Inc., as adopted at the meeting last week is as follows:

ARTICLE I—NAME

Section 1. The name of this corporation shall be the National Association of Automobile Manufacturers, Incorporated.

ARTICLE II—OBJECTS

Section 1. The objects of this association shall be to protect, promote, further and advance the interests of the members, as manufacturers and sellers of automobiles and all other self-propelling vehicles of every kind and description, and of the various parts of automobiles, or accessories thereto, and as journalists devoted in all or in part to the interests of the automobile, self-propelling vehicles and allied and kindred industries.

ARTICLE III—MEMBERSHIP

Section 1. The membership shall consist of two classes; active and associate.

Section 2. Any person, and the representative of any copartnership or corporation, in good standing, and engaged in the manufacture of automobiles in the United States shall be eligible to active membership.

Section 3. Any person, and the representative of any copartnership or corporation, in good standing, engaged in the United States in the manufacture of parts of automobiles or accessories thereto, or in the sale thereof, or in the sale of automobiles, and the representative of any journal devoted in whole or in part to the interest of the automobile or allied industries, shall be eligible to associate membership.

Section 4. Whether any particular applicant for membership in the association is in "good standing" shall be determined absolutely by a majority vote of the members of the executive committee present at any meeting at which said question may arise; but no member shall in any event be considered in good standing who may be in default for any dues.

ARTICLE IV—GOVERNMENT.

Section 1. The officers of the association shall be a president, first, second and third vice presidents, a treasurer and an executive committee, fifteen in number. There may or may not be a secretary appointed or elected by a majority vote of the executive committee and such secretary may or may not be a member of the corporation.

The most important articles of the by-laws are as follows:

ARTICLE I—GOVERNMENT

Section 1. The management and control of the affairs and funds of the association shall be vested in an executive committee, fifteen in number.

ARTICLE II—MEETINGS

Section 1. The annual meeting shall be held in the city of New York, on such date as shall be determined by the executive committee. Notice of the time and place of such meetings shall be mailed to each member, 30 days before each such meeting.

Section 2. Special meetings of the association may be held upon a call signed by a majority of the executive committee or by ten active members in good standing and not less than 10 days after the issuance of a notice of any such call, and such notice shall state the purpose of the meeting.

Section 3. At all meetings of the association, fifteen active members shall constitute a quorum.

Section 4. Members may be represented at all members' meeting in person or by proxy, but no individual shall be permitted to represent and vote more than one membership.

ARTICLE IV—MEMBERSHIP

Section 1. The incorporators of the association may elect to membership by an affirmative vote of at least two-thirds thereof such of the members of the old unincorporated National Association of Automobile Manufacturers as have signified in writing their assent to the creation of the new incorporated association and the transfer of the effects and assets of the said national association to the new corporation, or who shall file with the

the new association a similar consent, within 15 days after notice to them that they are required so to do.

Section 2. Applications for membership by others than those who may be elected in pursuance of the foregoing section must be made in due form, addressed to the association, signed by the applicant, and endorsed with the approval of at least two then active members in good standing.

Section 3. The affirmative votes of at least two-thirds of the executive committee shall be necessary for an election to membership. No candidate so elected shall be deemed to have become a member of the association until he shall have qualified by paying to the treasurer, within 30 days after notice of his election, the membership fees and dues for the then current year; upon the candidate's failure to so qualify within the time limited herein, his election shall be considered to be annulled thereby unless the executive committee by two-thirds vote shall extend the time within which he may qualify for particular cause shown.

Section 4. Every member and corporation or copartnership whose representative is a member shall within 30 days of the receipt by him of notice of his election and before he shall exercise any of the rights or privileges of membership, subscribe the constitution and by-laws of the association.

Section 5. The membership fee shall be for active members \$25; for associate members \$10; and the annual dues thereafter shall be for active members \$10 and for associate members \$5. The dues shall be payable to the treasurer annually upon the first day of January in each and every year.

Section 6. Any member who neglects to pay his annual dues as provided in the foregoing section and who shall remain in default for 60 days after due notice that his dues remain unpaid and that he stands in danger of the forfeiture provided in this section shall be deemed to have forfeited his membership, and such member can only be reinstated by a majority vote of the executive committee, and after full settlement of delinquent dues.

ARTICLE VIII—PRIVILEGES

Section 1. Every active member in good standing shall be eligible to the executive committee and to any office and any committee.

Section 2. Associate members shall be entitled to all privileges of the association and shall conform to its constitution and by-laws and rules, but shall not have the right to hold office or vote.

ARTICLE IX—ANNUAL CONVENTION

Section 1. Once in each year, at such time and place as may be determined by the executive committee, there may be held a meeting or convention, of active and associate members of this association, at which discussions shall be held and papers read on topics of general interest to this association.

STEAMERS SELL WELL

The most important development in the automobile trade in Providence, R. I., was the incorporation of the Central Automobile Exchange. The exchange last year had the agency for the Stanley and White, and was successful. This year it placed an order with the Stanley people for 500 machines, planning to sell them all over New England and perhaps in New York. The officers are: President, L. F. N. Baldwin; vice-president, B. L. Blackinton; secretary and treasurer, Gilbert M. King. The capital stock is \$25,000, which is all paid in. The present headquarters will be enlarged. An order for 200 additional Stanley cars has been placed, and agencies will be established, in Fall River, Mass.; Hartford, Conn., and New York.

TARIFF LOW IN INDIA

Under the new tariff act of British India, motor cars are subject to an import duty of 5 per cent ad valorem, with the exception of those designed to carry goods and containing a prime mover, which are free of duty. The low rate of duty is destined to promote the industry in India.



Gossip of the Garages

W. Gould Brokaw, of the A. C. A. racing committee, who had a car in the Ormond races, has just ordered a 24-30 Fiat from Hollander & Tange-man, of New York. It is to be especially built for him at the Turin factory, and will be finished entirely in white. The carriage will be built of white Cape Cod wood, and it will be upholstered with white enamelled leather. His brother, Clifford Brokaw, purchased a Fiat about a month ago. During the past 3 weeks Hollander & Tange-man have sold twelve of these cars, representing a total cost of over \$100,000. G. P. Tangeman, who is to sail May 24, will have a Fiat awaiting him in Paris for a run to Homburg for the cup race.

Since L. Lawrence, of Newark, N. J., announced his detachable upholstering for aluminum bodies enabling the owner to take out the upholstered backings and sides in event of an indentation being made in the body or in event of any sort of an accident, he has had a number of inquiries and his business promises to grow. The development of the idea promises to become general. The upholstering is done on frames which fit perfectly into the body instead of being done on the body itself, necessitating its taking apart to effect a repair.

President Winsor T. White, of the White Sewing Machine Co., was in Boston last week and spent the entire day in company with Manager George Lowe, looking over sites for the construction of a White garage. The necessity for such a garage has been apparent for over a year and it now looks as though the matter will be brought to an immediate focus and that within a month or so. Two sites are now being considered, one in the Back bay district and the other on Berkeley street, near the Locomobile establishment.

The Phelps, a new car in the New York field, is making its way rapidly into the realms of popularity. The Phelps Motor Vehicle Co., at 154 West Thirty-eighth street, was fortunate enough to secure a location in the heart of the automobile district and the attractiveness of the car in competition with others has given it popularity. The Phelps gained a good name by winning performances in Eagle Rock contests of 1903.

One of the most progressive of the Boston managers is E. A. Gilmore, of the Rambler, who has this season disposed of as many machines as any one other agent or dealer in this city. His stock of Ramblers has dwindled down considerably, and the only thing he is not able to do is to smooth down the army of angry men awaiting deliveries of the cars ordered.

Automobile delivery wagons are growing rapidly in popularity in Newark, N. J., and the horse is being forced to give way to modern inventions. One of the recent purchasers of a delivery wagon was H. E. Bird, who purchased a Cadillac delivery wagon from the Motor Car Co., of New Jersey. Mr. Bird will use this wagon for cigar delivery purposes in Newark

and the Oranges, replacing several horses in the work.

A carload of Yales has done a little to relieve the pressure at the Pioneer Automobile Co., of New York.

W. H. Kirkpatrick, who is making a tour of Peerless agencies and branches, was in New York last week.

Baron F. de Durekheim, who went to St. Louis to install the de Dietrich exhibit, has returned to New York.

Sales Manager Martin, of the Cadillac Co., of New York, has gone to Conisville to recuperate from a recent attack of appendicitis.

George H. Day, Charles Clifton, E. H. Culter and L. T. Davis, Jr., were a notable quartette at Clason Point Inn, New York, on a recent evening.

E. B. Galligher is showing at the New York garage, 140 West Thirty-eighth street, a 55-horsepower Georges Richard-Brazier car of attractive appearance.

The special igniter, which the Banker Bros. Co. is introducing to automobilists at large is a part of the regular equipment of the Pierce and Peerless cars.

During the last week the Eldredge runabout made its appearance in Newark, N. J., the Newark Automobile Co. being the agent. Manager Hood has been kept constantly employed giving demonstrations.

The Duerr-Ward Co., New York, received the first of the four-cylinder Royal Tourists last week and on the strength of its impressive appearance and satisfactory demonstration has already taken six orders for them.

Paul T. Deming, New York representative of the White Sewing Machine Co., has returned from a 3 months' honeymoon tour in southern Europe in the touring car that won for him a gold medal in the Pittsburg run.

One of the busiest demonstrating cars in Gotham is the 1904 Olds tonneau, which is regarded as one of the "cutest little things on wheels." General Eckert, manager of the Postal Telegraph Co., was one of the first buyers.

"Birdie" Munger has joined with G. W. Moore and formed the Moore & Munger Co., to manufacture bodies, tops, fenders and all accessories. A four-story factory has been established at 602-604 West Fifty-second street, New York.

H. H. Rice, who has been the Providence, R. I., representative of the Pope Mfg. Co. for some years, has been transferred to the Waverley factory at Indianapolis,

Ind., and with a very few days' notice he gave up his place and went to accept his new position. In addition to having full charge of all of the Providence business of the Pope company, Mr. Rice was the secretary of the Rhode Island Automobile Club and was one of the most active officials on the board of directors. W. J. Foss, who has been the representative of the Pope company in Washington, D. C., is Mr. Rice's successor.

Since moving into new quarters the Motor Car Co., of New Jersey, has been busy selling Cadillac cars. One carload received during the week was cleaned out and two more will arrive within a few days. C. S. Calvert, of the Motor Car Co., and W. H. Kirkpatrick, of the Peerless Co., have made several trips through the state and in these trips disposed of a number of Peerless cars.

The agency for two new cars has been taken for the Providence, R. I., district. The Shepard Co., which controls one of the largest department stores in that city, will sell the Cameron car, made in Pawtucket, and the Georges Richard-Brazier. John Shepard, Jr., has had one of the \$7,000 Braziers for a number of weeks.

The first lot of Smith & Mabley motor boats will be in the water by the end of the month. Delivery of Simplex automobiles will begin the middle of June. The company has established in addition to its regular Panhard and Renault lines a Mercedes connection that is adding a considerable factor to its importations.

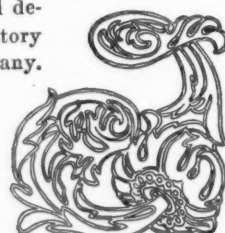
George W. Condon, of Newark, N. J., has secured the agency for Minerva, a French car, and will receive a car shortly. The Minerva is constructed in several styles, one, two, three and four cylinders, and ranging in price up to \$15,000. The power varies according to the model, from 8 to 90 horsepower.

C. F. Nagle, who for a great number of years had charge of the private garage of Dr. Parker, one of the members of the summer colony on the North Shore, Boston, has or will shortly embark in the automobile trade. He is now negotiating for the securing of the Fiat agency in Boston.

Regular shipments of Decauvilles to meet orders already placed continue with satisfactory monotony at the Standard Automobile Co., of New York. The evidences of one of the biggest importing businesses in town are indisputable at this garage.

When an automobile breaks down in Newark, N. J., nowadays the emergency car maintained by the Newark Automobile Co. is immediately called. Sunday four calls were received from the neighborhood of the North Newark station.

John A. Kingman, who was in New York Saturday, reports the most satisfactory season as regards sales and deliveries in the recent history of the Locomobile company.



THE READERS' CLEARING HOUSE

WORN ENGINE BEARINGS

Wapakoneta, O.—Editor MOTOR AGE—I have a 4-horsepower motor, of the French high speed variety. After running 1,000 miles I find that the crank shaft bearings and those of the connecting rod are worn badly. The machine then makes a lot of noise. The motor is of 4-inch bore and stroke. I have run it one season and my cyclometer shows 2,100 miles. After the first 1,000 miles the motor rattled and knocked so badly that I overhauled it and put in new bearings. Thinking that perhaps I had not used oil freely enough, I watched this feature closely and know that in the next 1,000 miles of running there was always plenty of oil on the bearings. Yet they again wore out as before. The crank shaft bearings in the crank case, as well as the connecting rod bearings, are bronze bushed. When the motor was overhauled the best hard brass was used for the bushings. The motor runs at from 400 to 1,400 revolutions per minute and is geared on the high speed at the ratio of five to one. I generally drive the car about 12 or 15 miles an hour. It can run twice as fast. The total weight of the car is 550 pounds. I run the machine very carefully and always take every precaution to keep the motor running as slowly as possible. I think the motor bearings ought to give a longer wear. What is the cause of this undue wearing and how can it be remedied?—G. C. S.

The trouble with the motor can only be poor design. Operating the car as stated, using plenty of oil and low motor speed, a well designed motor would show no appreciable wear for at least 4,000 miles. There is only one thing to be done—reduce the load per unit of bearing section. This can be accomplished by making a new crank shaft, either increased in diameter or lengthened in the crank pin and crank shaft bearings. This necessitates, of course, new bushings all through.

CLEANING A MOTOR

Devils Lake, N. Dak.—Editor MOTOR AGE—I have been advised to inject kerosene into the cylinder of an air-cooled gasoline motor to clean it of the deposit of soot, etc. Is this advice correct? The motor is vertical with the relief cock on the cylinder head. After the injection would the kerosene have to be removed from the cylinder or would it pass down into the crank case and be left there? Is a spark plug with stone insulation good for use with an air-cooled motor? What is the best way to remedy slipping in a leather faced, band friction clutch?—HARLAN R. FANCHER.

Kerosene injected into the cylinder will clear the carbon deposit from the valves and cylinder. While the motor is in operation cut out the spark and inject the kerosene. The motor will blow it out of the exhaust, leaving a clear cylinder. A plug that will operate satisfactorily in a water-cooled cylinder will do the same if the cylinder is air-cooled, provided that there is sufficient radiation for the latter. The slipping of the clutch can be rem-

edied by using a new brake wheel and band, either of larger diameter or greater width. An occasional application of belt dressing to the leather surface will probably be all that is required. See that the rivets holding the leather to its retainer have not cut through so as to bear on the drum. If they have, it would be advisable to replace the old leather with a new one.

WIRING A MOTOR

Ashtabula, O.—Editor MOTOR AGE—How should a double-cylinder motor be wired from a double coil? Will you kindly show diagram?—C. H.

As the number of terminals on the double coil is not stated MOTOR AGE will illustrate the wiring for two separate coils, which will probably give the information desired. The two coils are indicated at A and B, with one secondary from each leading to the plugs C. The other two secondary wires are joined and grounded on the motor, as indicated at D. One of the battery wires, E, is also grounded and the other battery terminal is connected to one primary terminal of each coil. The remaining two primary wires, one on each coil, are connected to the two contact arms on the circuit breaker F. The arms, of course, are insulated. In case the spark occurs in the wrong cylinder, reverse the wires to the circuit breaker arms.

MOTOR MATERIALS

Fond du Lac, Wis.—Editor MOTOR AGE—Why are not aluminum pistons used in gasoline motors? They would be lighter and cause less motor vibration. Would not brass packing rings on the piston be better than cast iron ones for running with a steel cylinder? If not, why not? Why is not steel more commonly used for cylinders instead of cast gray iron? It would be lighter and stronger. Would not steel be better than cast iron for the cylinder of an air-cooled engine? I understand that steel cylinders are used on some of the French racing cars.—A. J. F.

Light pistons certainly would be an advantage regarding vibration and motor speed, but wear upon aluminum is excessive and even if flooded with oil, it cannot be used in a cylinder. Steel, hardened, will run fairly well, but

of course this construction is impossible in motor design. A brass ring would lose its elasticity, to some extent, in the presence of the cylinder heat. Rings should be of the same material as the piston so that the expansion will be the same. Otherwise there will either be a longitudinal play of the ring in the groove, or else the ring will stick when the motor is in operation. A ring is a double-seated check valve and as such must be a perfect and absolute fit under all operative conditions. A water-cooled motor cylinder must have either a water jacket cast around it, or various flanges and lugs for attaching one. There must also be the lugs for the valve connections, ignition plug and water connections. With a cast iron cylinder these can readily be arranged. A steel casting containing intricate core parts such as are found in engine cylinders, could only be cast at a great expense and a loss of many castings. Cast steel is usually porous; not on the skin, but in blow holes that do not show on the surface, which continually leak. A cylinder could be worked out of a forging and by brazing the lugs and flanges made to do service, but the expense precludes the manufacture. The European cars with steel cylinders are specially built where light weight is the object sought. The cylinders are often of steel tubing, which necessitates joints that must be packed. Cast iron is much better for use in connection with an air-cooled motor.

VALVELESS ENGINE

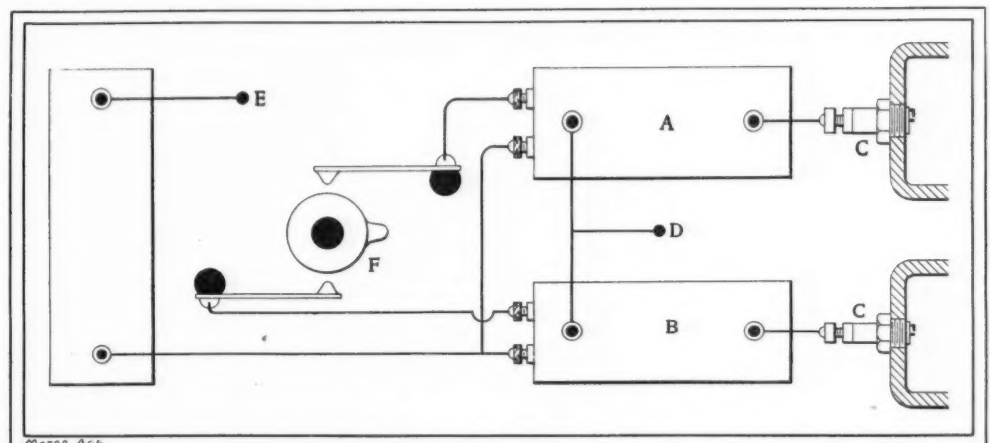
Leavenworth, Kan.—Editor MOTOR AGE—I would like information relative to a valveless gasoline engine. I recently saw a catalogue of a small boat engine which was claimed by the maker to be valveless. I do not understand how there can be such a construction. If it is possible is it practicable?—D. R. ANTHONY, JR.

No engine can be valveless. In a two-cycle motor the piston uncovers the ports for the inlet and exhaust. The piston in this case is its own valve. Probably the manufacturers mean that such construction obviates the ordinary poppet valve of the four-cycle motor.

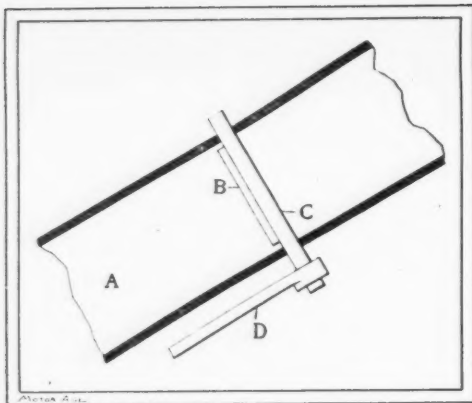
RECOIL IN MOTORS

Decatur, Mich.—Editor MOTOR AGE—If the head of a single-cylinder horizontal motor were placed toward the front of the car would the recoil from the explosion tend to drive the car ahead?—A. E. LAWRENCE.

Explosion in a sealed drum not sufficiently powerful to produce rupture, develops a rise of temperature and pressure, but no recoil. In an engine cylinder the piston forms a movable seal. Upon ignition the piston and cylinder



WIRING TWO-CYLINDER MOTOR FROM TWO COILS



THROTTLE IN INLET PIPE

are forced apart with equal pressure. The cylinder is carried in the frame and so are the bearings to which the piston movement is transmitted. This is similar to the explosion in a drum, in that the action and reaction are absorbed by the same member, and differs because the rise of temperature under constant volume is changed to a rise of temperature under constant pressure. If a projectile discharged by a piece of ordnance should strike a plate attached to the mount as soon as it reached the muzzle there would be no recoil as the action would balance the reaction. The position of the motor cylinder axis cannot accelerate or retard the speed of the car.

CANVAS MOTOR TIRES

Sutton, Neb.—Editor MOTOR AGE—Has there ever been an attempt to make outer casings for automobile tires on the principle of the stitched canvas belt? It seems to me that this could be done, for although the canvas stretches more than the rubber it wears much longer and can be repainted when it becomes worn, and thus made to look as good as new. Such a tire would be nearly puncture proof and would not have to be sold at the excessive price of the rubber casing. Probably a complete canvas casing could be sold for \$5.—J. M. WEBER.

The canvas case, as a separate part of the tire, is now manufactured as a tire protector. The construction of most foreign tires consists of but a little rubber on the tread. This soon wears through and the life of the tire does not seem to be diminished in any way, although the wear is then entirely on the fabric. A casing made entirely of canvas would, however, not have the elasticity of the rather heavily rubbered American tire.

MOTOR THROTTLE

New York—Editor MOTOR AGE—Will you kindly present a drawing of a simple throttle to be applied to a de Dion style of $2\frac{3}{4}$ -horse power motor cycle engine? Where should this throttle be applied? What number of teeth should be used on the sprockets to furnish a speed reduction of six or seven to one, driving through a system of four sprockets, two being on a counter shaft? How can back firing in an automobile motor be prevented?—W. W.

In the pipe line A, in the accompanying illustration, between the carbureter and the valve insert a flat disk B a trifle smaller than the inside pipe diameter. Solder to this a 3-16-inch rod C, which has at its extremity a lever D to operate the throttle. A hole 3-16-inch in diameter is drilled clear through the pipe A to give a bearing for the rod C. Place this valve close to one end of the pipe, so it can be soldered after in place. This should preferably

be close to the cylinder. With the valve as shown the motor will be throttled. A rotation of 90 degrees will give the full opening. The number of sprocket combinations is infinite, but as it is probably desired to use sprockets of nearly the same size the following will do nicely: Driving sprocket, ten teeth; driven counter shaft sprocket, twenty-five teeth; driving counter shaft sprocket, ten teeth; finally driven sprocket, twenty-five teeth. In this case there will be but two sizes of sprockets and the drive ratio will be one to six and one-fourth.

CARBURETER AIR INLET

Iowa City, Ia.—Editor MOTOR AGE—What is the largest air opening that can be used to advantage in a carbureter of the mixing valve style on a single-cylinder gasoline motor of $4\frac{1}{2}$ -inch bore by $5\frac{1}{2}$ -inch stroke, running at a maximum speed of 1,000 revolutions per minute? What horsepower should this motor develop?—E. D. C.

It will be of no advantage to have the air opening greater than that of a $1\frac{3}{8}$ -inch circle. Assuming good compression the motor should develop $5\frac{1}{2}$ horsepower at the speed mentioned.

CASTING CRANK CASES

Buffalo, N. Y.—Editor MOTOR AGE—I am having more or less trouble on account of shrinkage in casting three and four-cylinder aluminum motor crank cases. If the pattern has very heavy lugs, there occurs in nearly every case shrink holes underneath them. Although we use risers in most instances we meet with no better results. Can you suggest anything to overcome this shrinkage?—H. B. F.

Use several risers and gate so the metal will run rapidly. Have the patterns made with at least four good substantial prints. The holes near the lugs are due to the size of the latter. Either lengthen the lugs or have more metal adjacent to them. This extra metal could be a continuation of the lug and cut off afterwards. Have it taper from the size of the lug to nothing at the back.

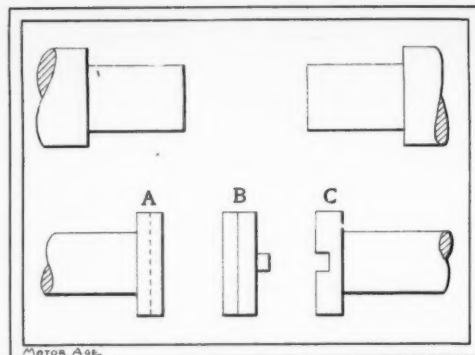
WET VERSUS DRY CELLS

Malden, Mass.—Can you tell me through the Readers' Clearing House what to use for a liquid battery of 6 volts in place of ordinary dry cells? Although I have never experienced trouble with dry cells I am told that better results are obtained with liquid batteries. I wish to make these cells myself. How often would the cells have to be renewed? My coil will not stand more than 6 volts.—W. H. PEMBROOK.

MOTOR AGE advises the use of the dry battery. The years of automobile development have opened the greatest field for battery manufacturers. In the infancy of the industry a dry battery could not be found that possessed any life. The battery manufacturers have long since perfected the dry battery. It is a case of survival of the fittest and it will be better to buy dry cells than to make a wet battery which will be constantly slopping over and continually necessitating the replacement of broken jars.

SHAFT COUPLING

Ann Arbor, Mich.—Editor MOTOR AGE—The accompanying sketch represents the adjoining ends of the shafts of the motor and transmission gear of my car. They do not coincide, being just enough out of line to necessitate some sort of a flexible coupling. I have been told that it is impracticable in this case to use

THE ADJACENT SHAFT ENDS
COUPLING FOR MISALIGNED SHAFTS

Hookes joints, because of the closeness of the shafts and of the high speed. Can this style of joint be used, and, if not, what style of coupling should be made?—H. W. MCCLURE.

Unless the axes of the shafts intersect a Hookes joint would not do. MOTOR AGE advises an Oldham coupling, which will care for this misalignment perfectly. It consists of three pieces, of which A and C are keyed, one on the crank shaft and one on the transmission shaft. These should be of steel. The sketch shows a slot in each. Piece B is the floating member, which consists of a steel disk with a tongue on each side. These tongues are placed at right angles to each other and fit nicely to slide in the slots of A and C. When assembled the floating member should be allowed at least 1-16-inch play lengthwise of the shaft. This coupling will take care of shafts with axes that are parallel and not coincident and of shafts whose axes do or do not intersect. Its efficiency, of course, decreases with the magnitude of the misalignment.

USING PICRIC ACID

New York—Editor MOTOR AGE—I recently noticed in an English paper a description of a "pierator," in which the gasoline simply runs through the picric acid. The device consists of a long tube with a screw cap on one end, by the removal of which may be inserted an inner receptacle with a gauze cap on each end and which is supposed to hold picric acid in the form of crystals. The gasoline is supposed to enter the outer tube and to flow through the inner one containing the picric acid, leaving the other end of the device on its way to the motor carbureter. Would the acid produce as much additional power when used this way as when left to stand in the gasoline for a length of time before using?—W. R. W.

This method would be more satisfactory in every way than mixing the acid with the gasoline by agitation. The acid will discolor the hands and nails so care is necessary in its handling. MOTOR AGE has seen devices on the order named that have proven most excellent for handling and manufacturing picric acid.

MATHEMATICS OF A MUFFLER

An ideal muffler should reduce the noise of exhaust to the least possible, and put no back pressure upon the piston of the engine. It should obviously, also, be large enough to meet these requirements and no more, space being valuable. It may even be desirable in practice to sacrifice a little of each of these points to the desirability of keeping the muffler as small as possible in the case of the motor cycle and some small cars; but they still remain the ideal, says A. C. Davidson, in the Autocar, of London.

Referring to the first item, the noise to be deadened is caused by the sudden liberation of the exhaust gases under pressure. These expand violently, striking the surrounding air and setting it into vibration, causing the sensation known as a noise or explosion. If gases could be expanded in the cylinder until they came down to atmospheric pressure, the only sound heard would be the hiss of the gas as it passed the exhaust valve. Such a result would be quite possible, and conducive to economy in the engine.

The same result is achieved by making the muffler of such capacity and form that the gas expands in it gradually to atmospheric pressure before being released, and this is the method usually adopted.

There is another method which has lately been tried with fair success, and that is to make the muffler of practically no capacity, but to dismiss the gas through very numerous small openings, the idea being to subdivide the large explosion into numerous small ones, which, not synchronising, do not produce the same noise; but such silencers must always be inferior to one which allows room for the expansion of the gas to a lower pressure before dismissal.

To avoid back pressure, the holes of either type must be of sufficient combined area to pass all the gas at the pressure at which it reaches them without reducing its velocity, and as the pressure must obviously fall off after passing the exhaust valve, and as the amount of gas passing through any given opening depends directly upon its pressure, the combined area of the holes in the baffles must never be less than that of the exhaust valve.

Before proceeding to actual dimensions the volume of gas to dispose of and its pressure at the moment of release must be known. As no reliable experiments of the pressure in the exhaust pipe are at hand this can best be determined by making an indicator diagram of the engine to be considered. Assuming a piston of 5 square inches area and a stroke of 3 inches, giving about 2 horsepower at 2,000 revolutions per minute, the diagram in Fig. 1 may be obtained; further assuming a compression of one-fourth of the cylinder volume, and a temperature at admission of 150 degrees Fahrenheit, the gas being heated to 3,260 degrees Fahrenheit, and expanded to its original volume.

From this it will be seen that at the end of the power stroke there is a volume of 15 cubic inches at a pressure of 47.5 pounds per square inch absolute. To expand gas at this pressure down to atmospheric pressure, it must increase 2.3 times its volume, and the capacity of cylinder and muffler combined must be 2.3 times the capacity of the cylinder alone, always supposing that the exhaust valve is large enough, as is generally the case, to liberate the

gas practically instantaneously before the piston returns.

As gas at 47.5 pounds pressure passes through an opening $\frac{3}{4}$ -square inch—about the usual size of valve for such an engine—at the rate of 434 cubic feet per minute, and there are only 15 cubic inches to pass, the time occupied will be

$$\frac{15}{434 \times 1728} = \frac{1}{49800} \text{ minute, and the piston}$$

performs a stroke of 3 inches in 1-4000 minute. Therefore, it will only have moved about $\frac{1}{4}$ -inch; in point of fact, less, as the velocity taken above is its average velocity, and at the ends of the stroke it moves more slowly, so that the emission is unaffected by it and the cylinder may be counted in the available expansion space. It is necessary, then, to provide only for 1.3 times its capacity in the muffler.

If, therefore, there is added to the engine cylinder a muffler of 19½ cubic inches, and the gas is allowed to expand in it, there will be no tendency to expand farther and escape, but it will merely be displaced by the piston during its return stroke, and will put no back pressure at all on the engine except the small amount caused by the friction of the air against the sides of the pipes.

So far the requirements are fully met, but the noise, although muffled, will still remain, as the expanding gas, suffering no check after passing the exhaust valve, will still strike violently against the imprisoned air in the muffler, and there will be experienced exactly the same report as if it were allowed to pass directly into the open air, except that this report will be inside a box, the walls of which will to some extent diminish the communication of the vibration to the surrounding air.

To check this still further, the large explosion must be broken up into a number of smaller ones, by passing the gas through a series of holes or baffle plates, and how to proportion these to avoid back pressure must be considered. The theoretical discharge of air through an orifice is given by the following formula:

$$\text{Cubic feet passed per minute} = \text{area} \times 37.8 \sqrt{\frac{\text{external press. in lbs. per sq. inch absolute}}{\text{diff. of press. on each side of orifice in lbs. per sq. inch}}}$$

For pressures up to 50 pounds, experiment shows that only .7 of this amount can be counted on, and the following formula may be used:

$$\text{Cubic feet passed per minute} = \text{area} \times 26.4 \sqrt{\frac{\text{external press.} \times \text{diff. of press.}}{r.408}}$$

Let it be assumed that three plates are inserted across the mufflers, dividing it into four equal parts. The pressure of the gas at each baffle, and from that the area necessary to pass it can then be found.

With three baffles, the volumes of the expanding gas will be

- At entrance, 1.
- At first baffle, 1 1-3.
- At second baffle, 1 2-3.
- At third baffle, 2.
- At exit, 2 1-3.

The pressure corresponding to these volumes may be calculated on the formula:

$$P' = \frac{P}{r.408}$$

P being the initial pressure in pounds per square inch absolute, P' the required pressure, and the r ratio of the volume after expansion to the initial volume.

From this it is found that the pressures will be respectively:

- At entrance, 47.5 pounds.
- At first baffle, 31.3 pounds.
- At second baffle, 23.1 pounds.
- At third baffle, 17.5 pounds.
- At exit, 14.7 pounds.

The following diagram in Fig. 2 shows these results.

It is now necessary to proportion the area of the holes in the baffles so that the velocity of the escaping gas may not be diminished. Taking the area of exhaust valve at $\frac{3}{4}$ -square inch, the quantity of gas passed at 47.5 pounds pressure to a pressure of 31.3 pounds by the corrected formula equals 550 cubic feet per minute.

The first opening into the muffler should be obviously at least as great as the exhaust valve, which with a properly-proportioned exhaust pipe it will be.

Calculating by the same formula the amount of gas passed per minute through a $\frac{3}{4}$ -square inch opening is

- At entrance, 550 cubic feet.
- At first baffle, 316 cubic feet.
- At second baffle, 225 cubic feet.
- At third baffle, 138 cubic feet.

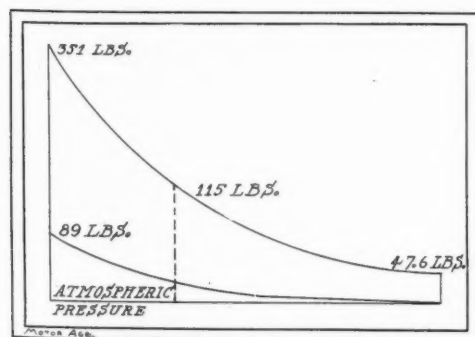
If the velocity of the gas is to remain constant, the areas of the holes should vary inversely as these amount, or be

- At first baffle, 1.3-square inch.
- At second baffle, 1.8-square inch.
- At third baffle, 3.0 square inch.

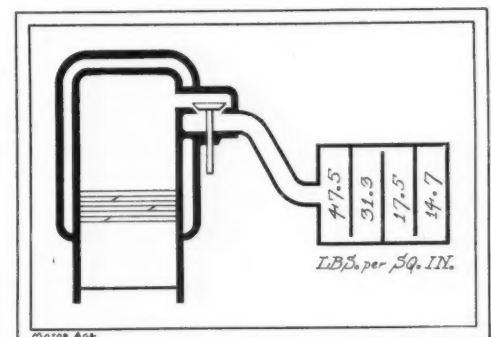
If the total quantity of the expanding gas had to pass through each baffle, these areas would be the right sizes, but when the muffler is completely filled the last compartment has passed only one-third of the cylinder volume, the next two-thirds, the third three-thirds or one, and the entrance four-thirds, or one and one-third the cylinder volume. Therefore, the areas may be reduced in proportion to the volumes they have to pass, and the final result is:

- At entrance, $\frac{3}{4}$ -square inch.
- At first baffle, 1.3-square inch.
- At second baffle, 1.2-square inch.
- At third baffle, 1.0-square inch.

These are the total amounts to which the combined area of the holes must amount, and the more numerous and smaller they are the better for silencing effect, the practical limit to their smallness being set by the liability of exceedingly fine holes to get choked up. In conclusion, the above figures must not be taken as representing any particular muffler, but from the formula given, and following the same principles, it is easy to proportion any type, whether tubular, cross baffled, or other, so that it shall allow the gases to expand to atmospheric pressure without back pressure on the piston, and with the maximum of silencing effect.

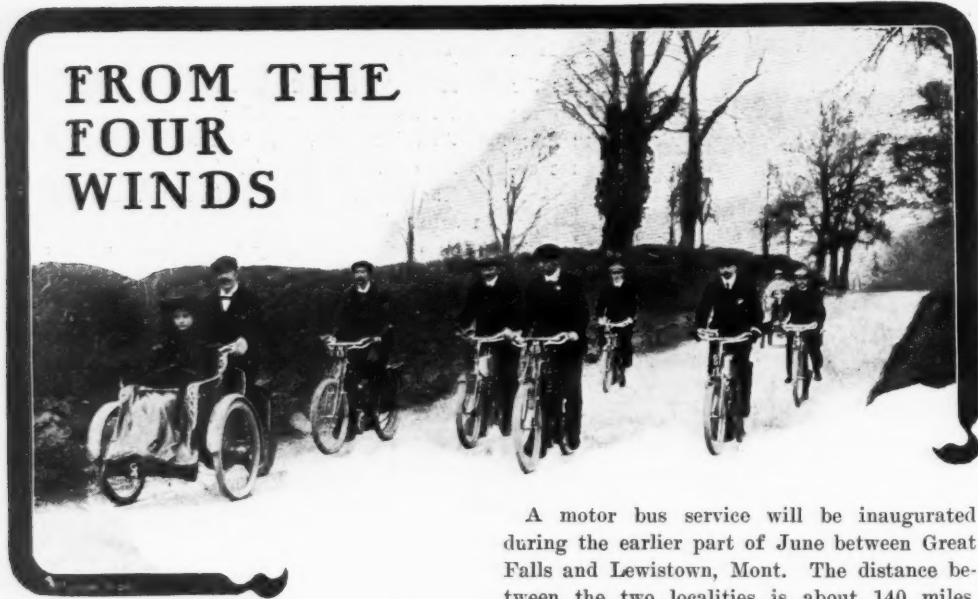


MUFFLER PRESSURE—FIG. 1



MUFFLER PRESSURE—FIG. 2

FROM THE FOUR WINDS



The first automobile parade on a large scale ever held in Cincinnati, O., was held last week, when over a hundred automobiles paraded part of the city.

Nine permits have been issued to new automobile owners, so far this year, in Akron, O., making a total of seventy-eight automobiles owned by Akronians.

Mr. and Mrs. Maurice Rothschild recently returned to Minneapolis, Minn., after having traveled about 3,500 miles in their motor car through France, Belgium, Germany, Austria and Italy.

The Continental Caoutchouc and Gutta Percha Co., of Hanover, Germany, declared a dividend of 45 per cent for the business year of 1903. This is equal to \$130 for every \$300 share and \$65 for every \$150 share.

The De Motte Motor Car Co. was recently formed in Philadelphia, Pa. The factory is located at Valley Forge in the same state. Runabouts, touring cars, delivery wagons and trucks will be manufactured by the new concern.

Motor cycle competitions are in vogue in Italy just now. A sporting journal published in Milan has arranged a 1,000 kilometers test for the small cars, while the Unione Sportiva has arranged a road race, the distance being about 135 miles.

The Mobile Carriage Co., of San Francisco, has been engaged for service by the various hotels to take care of their cab and passenger service about the city and to the depots. The company has successfully handled the business of the Palace, Grand, Russ house and Occidental hotel in addition to the Hotel St. Francis, with which it has its regular bus line contract.

The officers of the law in Egg Harbor City and Mullica, N. J., have decided to erect a telephone line between the two localities and thus inform the officers in each of these towns whenever an automobilist is noticed on the roads driving his cars at a greater speed than that permitted by the law. To stop the drivers it has been decided to post men on the road, and they will throw strong iron chains across the highway in an endeavor to capture the law-breakers.

A motor bus service will be inaugurated during the earlier part of June between Great Falls and Lewistown, Mont. The distance between the two localities is about 140 miles, and it is expected by the promoters that not more than 9 hours will be required to complete the run. In some parts of the route the highways are reported to be very near their primitive state and it is difficult to distinguish the actual road from the rest of the earth. The people seem quite enthusiastic at the proposed motor line, which will save much time in transit.

One of the hill-climbing tests of the season in England was held during the latter part of April on Dashwood Hill. The distance was a fraction over half a mile and the grade varied from 8 to 13 per cent. A. Chase on a 2 3/4 horsepower Chase motor cycle climbed the hill in 59 3-5 seconds, and P. Prince, on a Peugeot of similar horsepower, was second in 1:39 4-5. W. J. Turell in a 6-horsepower Eagle car made the fastest time among the cars, reaching the top of the hill in 2:10 2-5.

Within the limits of the village of Plymouth, N. H., the automobile speed limit is 6 miles an hour; on the highways outside of the limits a speed of 10 miles an hour is permitted. Motor cars meeting a team on the country roads must come to a full stop and allow the horse and team to pass; when the driver of a passing team requests an automobile to stop in the village limit the motorist must do so and is liable to a fine not exceeding \$10 for each offense.

F. A. Newell, a retired jeweler from Attleboro, Mass., drives a Knox tonneau and is touring constantly. He has been in Washington since Feb. 1 and passed through Newark yesterday bound home. He found the roads between Washington and Philadelphia in terrible condition at the present time and about as bad as he had ever traveled over. Mrs. Newell accompanies her husband on all of his trips. In the car he carries 150 pounds of baggage.

A San Francisco journal reports that the police department of the city will soon receive an automobile patrol wagon. If the experiment with this hurry-up-call-and-get vehicle is satisfactory several will be added to the department.

Some citizen of West Chester, Pa., are worried because there is no automobile ordinance in their town. They intend to start a movement and hope to get their name on the list.

A new automobile factory is to be built in McKeesport, Pa., according to a local report.

The Dumont air-cooled car is described fully in a new catalogue issued by the Columbus Motor Vehicle Co., of Columbus, O. The cut making is especially excellent.

There are thirty runabouts and seven touring cars owned by automobilists in Nashua, N. H. There are four automobile dealers in the town and three of them have automobile stables.

The Automobile Club of California has made a change in the dates formerly selected for the races and show to be held at the Ingelside track. Instead of a 3-days' meeting the events will take place June 3 and 4.

Mrs. Garret A. Hobart, widow of the former vice president, owns two French machines now, an 18-horsepower Panhard and a 16-horsepower Darracq. Last week Mrs. Hobart purchased a Knox tonneau to add to her garage.

The new catalogue of the Warwick Cycle and Automobile Co., of Springfield, Mass., is unusually comprehensive in that it shows and describes two styles of automobiles, motor bicycles and bicycles, all Warwicks, of course.

The board of park commissioners of Louisville, Ky., recently decided that automobiles may travel at a speed of 12 miles an hour on straight runs in the parks. At curves and entrances the speed must not be over 5 miles per hour.

The Reid Mfg. Co., of Detroit, Mich., has filed articles of incorporation for the purpose of manufacturing sectional book cases, show cases, refrigerators, automobiles and store furnishings. The new company is capitalized at \$50,000, of which \$2,000 has been paid in cash and \$33,000 in other property. The stockholders are William P. Reid, Lewis R. Reid, and Harmon J. Hunt.

The work of dismantling the plant of the Century Motor Vehicle Co. of Syracuse, N. Y., is going on rapidly. The Syracuse Supply Co. is selling off the machinery and has written to all those who have purchased Century cars, notifying them that their only opportunity for purchasing parts to repair Century machines is at hand. Thus far there has been practically no demand for parts.

There is a great demand for automobiles in Australia and it is reported that several British concerns have recently sent special agents to Sydney and Melbourne, the principal cities in Australia, in order to get a thoroughly reliable report as to the conditions and possibilities of the motor trade. Should conditions be found satisfactory it is likely that the English houses will establish branch houses and even start factories.

A French motorist contributes an article in a Paris journal concerning the cost of his motor car during the 11 months he has had it. He traveled 6,677 miles during 203 days, an average of 33 miles per day. The expenses amounted to \$439.50. Among the items included therein are \$145.70 for gasoline, oil and lubricants; \$96.40 for repairs; \$48.10 for tires; \$35.60 for insurance; \$6 for taxes. The two-seated 6-horsepower car cost him originally \$750.



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The steel pan, which supports and protects the entire mechanism from mud, water and dust, makes the Decauville the most desirable car on the market for American roads.

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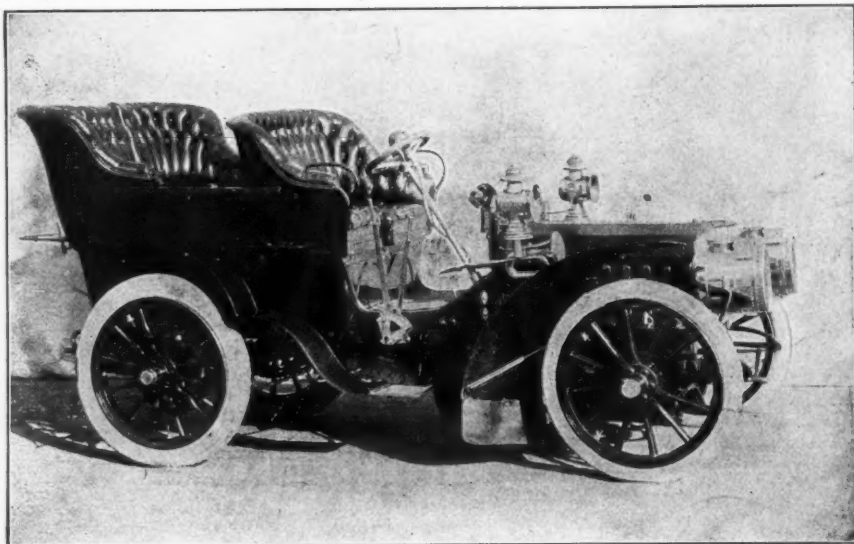


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Documentary Evidence!

April 25th, 1904

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Niagara St.,
Buffalo, N. Y.

My dear Mr. Thomas,
My car arrived a week ago and have been out in it almost every day since its arrival. I thought I have driven her in that time nearly four hundred miles and she was new from the factory not once have I had to stop

on the road and make adjustments. This pleased and surprised me as I had to stop often with the other two cars I had for the first few weeks to adjust parts.

Although I recognized the merit in the Thomas three cylinder car at the New York show and assured myself as to the quality of workmanship by a visit to your factory I was surprised to find my car even better than

I had expected.

At present I intend driving my car to St. Louis and anticipate very little trouble on the way. I feel sure that the running of my car will compare favorably with any of the other cars making the trip regardless of their price or horsepower.

Believe me sincerely yours

Percy S Palmer



Evidence Like This

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Thomas "Flyer."

Los Angeles says: "'Flyer' runs superbly; takes everything in sight on the high speed gear. Send us a second carload immediately."

See your Thomas Agent or write us for information and Catalogue

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Mfrs., E. R. THOMAS MOTOR CO.,

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TWO NEW AUTOMOBILE TIRES

*The
Instantaneously
Detachable*
DUNLOP

AND

The
**HARTFORD
CLINCHER**

Introducing an entirely new departure in rim construction. ∴ Its detachable side flanges or beads are removed by the simple loosening of a screw, leaving a flat faced rim, from which the tire can be removed "like slipping a belt off a pulley"—a loose belt at that,

made under the G & J patents. This tire combines all the excellent qualities of that construction with many improved features of its own, hitherto characteristic only of the foreign makes

THE HARTFORD RUBBER WORKS CO.

HARTFORD,

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THE RICH FIND IT MOST
SATISFACTORY
THE "POOR" FIND IT MOST
ECONOMICAL
THE RECENT REDUCTION
IN PRICE OF THE
FAMOUS

RUSHMORE SEARCHLIGHT

PLACES IT WITHIN THE
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Rushmore Dynamo Works
PLAINFIELD, N. J.



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310, 311, 312 Exchange Building, 53 State Street.

TELEPHONES { 2679.
3869.

Boston, April 25, 1904.

Continental Caoutchouc Co.,
298 Broadway,
New York, N. Y.

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Since the first of January my Pope-Robinson car, which is fitted with your Continental tires, has been driven over 1600 miles with only three punctures. This is in comparison with eight new American tires complete, that I had on my last year's car for about the same number of miles.

I find your Continental tires are much more resilient and I feel much safer, as four of my last year's American tires burst without warning, which is rather a handicap to running at a high speed.

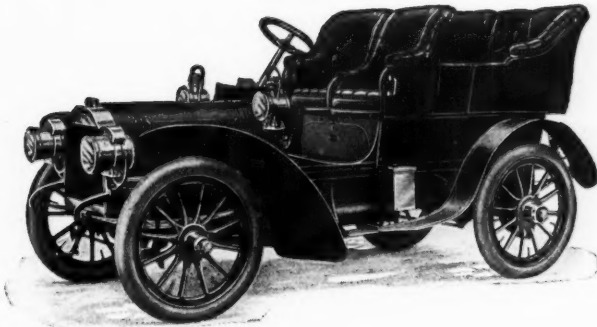
I find also that your Continental inner tubes are very much thicker and more substantial and would strongly advise anyone buying a car weighing 2000 pounds or more, to pay the difference and have the car fitted with Continental tires.

Yours very truly,

H. D. Corey

Peerless First Prices are High; because they constitute the whole cost of owning a

PEERLESS



They are the price of prevention. Our principles, materials and workmanship are the guarantee. Send for Catalog.

WE CAN MAKE IMMEDIATE DELIVERIES.

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MEMBER ASSOCIATION LICENSED AUTOMOBILE MANUFACTURERS.

The ROYAL TOURIST IS FOREIGN

to the Drawbacks prevalent in so many Motor Cars.



Model "O," 16-18 h. p. Model "K," 32-35 h. p. Aluminum Bodies—Canopy Tops—Side Door Limousine Bodies. \$2,300 to \$4,000

It has STYLE, SPEED, RELIABILITY and ECONOMY IN RUNNING.

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THE LIGHTEST
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ABSOLUTELY SAFE
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Attractive in Rich Finish and Design. ✱ Simply Manipulated. ✱ Always Satisfactory.
A Carriage Any Lady Can Drive.

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A Sturdy Car
for Constant Use and
Some Abuse

\$650

Air Cooled...Shaft Drive
VERY FAST
ONE YEAR GUARANTEE

ENGINE—Single vertical cylinder, developing 6 to 9 horsepower, cooled by 10 inch fan. Bearings phosphor bronze, splash lubrication.

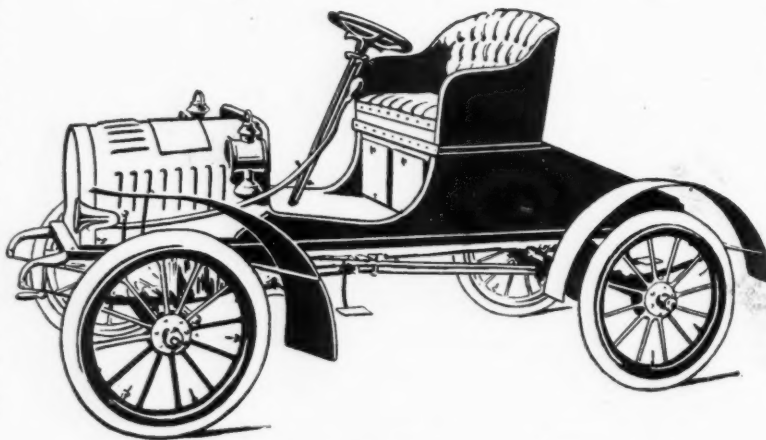
CARBURETOR—Float feed, air and gasoline controlled by one lever.

IGNITION—Jump spark from non-vibrator coil.

CLUTCH—Friction operated by foot lever.

TRANSMISSION—Sliding gear, two speeds. Gearing cut and hardened machinery steel. Enclosed in dust proof case and packed in solid oil.

DRIVE—Shaft through universal joint to bevel gears. Gears and shaft enclosed in dust proof case and packed in solid oil. Roller bearing rear axle.



With Detachable Tonneau, \$750

BRAKES—Very powerful double acting, internal expanding, adjustable to wear.

BODY—Air seasoned lumber. Oak sills and whitewood panels.

FINISH—Any color desired, with upholstering (leather) to match (tufted or plain).

SPRINGS—Oil tempered, semi-elliptic front, full elliptic rear.

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TREAD—46 inch or standard. Wheel base, 76 inch.

GUARANTEE—We guarantee the Cameron Car absolutely for one year.

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18-28 H. P.

15 H. P.

A limited number of the first 1904 Mercedes and Panhards ready for delivery in New York

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No ? about deliveries. Which would you rather do? buy a promise for 99 cts. or buy the goods for \$1.00? Spring will suggest to more than one who has trusted that "A bird in the hand, etc., etc."

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Incorporated

38th Street and Seventh Avenue, New York.

The Standard of Value in Automobiles

IS THE PRICE OF A

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Model "E" \$650

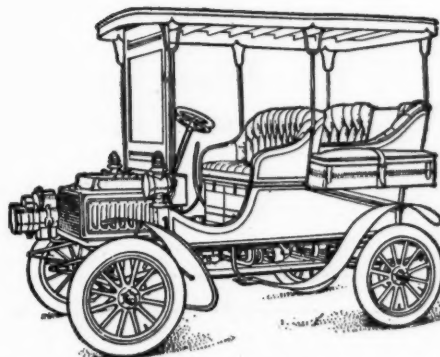
Single cylinder, lever steering

Model "G" \$750

Single cylinder, wheel steering,
81 inch wheel base

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Single cylinder, with tonneau,
81 inch wheel base



Model "J" \$1100

Double opposed cylinders, 16 horse
power, 84 inch wheel base

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Double opposed cylinders, with ton-
neau, 16 horse power, 84 inch
wheel base

Model "L" \$1350

Double cylinder tonneau, complete
with canopy top and side cur-
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If you pay any more, you cannot get your money's worth
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THOMAS B. JEFFERY & CO., Kenosha, Wis.

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30-35 Horse Power

Touring Car



Most powerful car of its weight and presents the maximum of efficiency, speed, reliability and usefulness. No other car equals it for smoothness and quietude in running or for amount of power developed with the engine at low speed. All working parts enclosed but quickly accessible.

Fitted with Tonneau, Limousine or Surrey Bodies of the most approved design and finish.

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New Model Light Electric Runabout 850

"Elberon" Electric Victoria (with latest improvements) 1600

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ELECTRIC VEHICLE COMPANY, Hartford, Conn.

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BOSTON, 74, 76, 78 Stanhope St.

Members of the Association of Licensed Automobile Manufacturers.

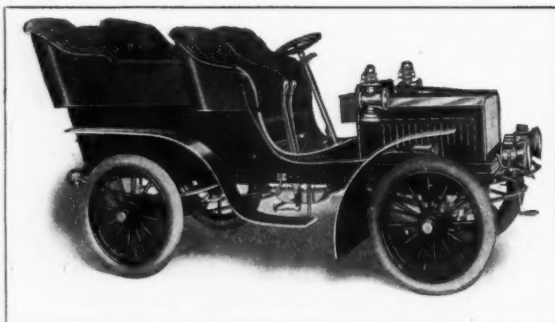
TWENTY HORSEPOWER

THE

PRICE \$2,000.00

DUMONT

THE MOST POWERFUL FOUR-CYLINDER AIR-COOLED CAR EVER BUILT. :: :: :: ::



AND WE GUARANTEE IT TO KEEP COOL UNDER THE MOST SEVERE TESTS. :: :: :: ::

WRITE US AND WE WILL TELL YOU MORE ABOUT IT.

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WEIGHT 1,800

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AGENTS WANTED.

FOUR SPEEDS

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Price \$650.00

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 The Runabout
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Price \$850.00

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The unparalleled success of the Oldsmobile is based on the solid foundation of unquestioned merit. Its motor equipment is the most perfect in the world. It is easy to operate and always under perfect control. It is built to run and DOES IT.

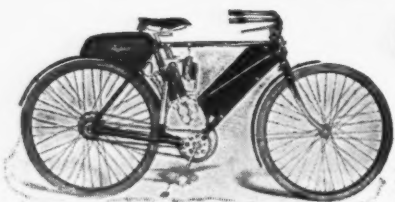
For particulars regarding our 1904 cars ask our nearest agent, or write direct
OLDS MOTOR WORKS, 1300 Jefferson Ave., Detroit, Mich., U. S. A.

MEMBER OF THE ASSOCIATION OF LICENSED AUTOMOBILE MANUFACTURERS.

Rambler, Crescent, Monarch and Imperial MOTOR BICYCLES

SAFE—Absolute one lever control.

SPEEDY—5 to 30 miles an hour, with great reserve power



COMFORTABLE—Spring fork
absorbs all vibration

13-4 H. P. Price \$225

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Rims branded in the channel with this copyrighted mark have been inspected and pronounced perfect. We guarantee our tires only on rims so branded.



The Pioneer ...Tire...

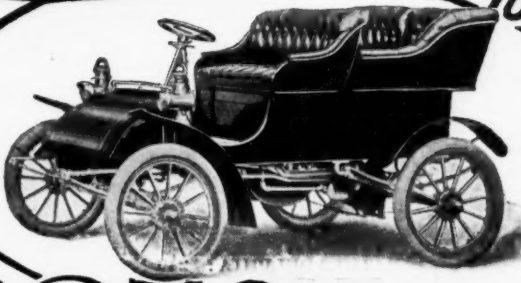
Experience counts in the making of automobile tires. We have been making G. & J. Clincher Tires for ten years, and know how to make tires that will give the best service. Use the Genuine G. & J. Tires and get the benefit of this experience. They are high grade, reliable tires.

G & J TIRE CO.

Main Office and
Factory

Indianapolis, Ind.

Let us tell more about the *Elmore* WITH TONNEAU



\$850.00

One difference between the Elmore and other cars is that the Elmore combines the luxuriousness, beauty and comfort of the highest priced touring car with the price of ordinary runabouts. Another very important difference is in the efficiency of the motor. This is of a special two-cycle type in which all the disadvantages of ordinary two-cycle engines have been eliminated and our motor has been pronounced by a gas engine expert, "the nearest thing to a steam-engine in the whole vapor-engine world." We wish you knew more about our motor and would like to put into your hand a little book which puts the whole matter clearly, under the title of "One Long Jump and Two Short Steps." Our catalogue will be mailed free.

The Elmore Mfg. Co.

Members of the Association of Licensed Automobile Manufacturers.

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**High
Power**



TOURING CARS

Our twenty-four horsepower, two-cylinder opposed motor located under bonnet is the most powerful two-cylinder motor used on any car made. Easily as accessible as any four-cylinder motor. A large, roomy car for either four or six passengers. Early delivery for those ordering promptly.

**The Best Car Built in America
For the Average Man to Run**

Write for prices and deliveries

Apperson Bros. Automobile Co., Kokomo, Indiana

Licensed Under Selden Patent

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The... NEW MASON

(Model "C")

includes all of the many excellencies of the original Mason Engine, with additional features, which give it a still greater lead ahead of all other steam auto engines.

We have made, operated and repaired more steam auto engines than any other concern, and have concentrated in the "Model C" all of the experience gained by this wide observation of all other engines.

Our "Model C" catalogue will tell you all about this engine, and prove interesting to every autoist. It will be a pleasure to mail you a copy. :: :: :: Send postal card for it to-day

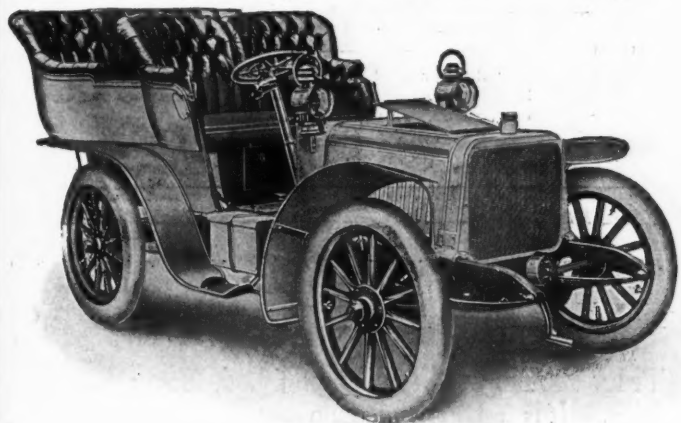
A full line of parts for all Mason Engines will be found at 147 Queen Victoria St., London, England.

THE MASON REGULATOR COMPANY
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Triumph over them all—First in Records, First in Sales, First in Reliability. 12, 15-20, 24-28, and 30-35 horsepower. Any style body desired. The Double Phaeton, with side entrance, and Tulip with swinging front seat, are the leaders.



Model 1904 "King of the Belgians" Four-Cylinder Touring Car in 15-20, or 30-35 horsepower.

American Darracq Automobile Co.

Controlled by F. A. La Roche Company

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Front Vertical Motors only. Good Material. Good Workmanship. Careful Finish. Special Equipment. Arrange for demonstration of **running qualities** at any branch office. We can make prompt delivery on account of unequalled manufacturing facilities, and because our car is **not an experiment**. Prices \$2100 Upwards.

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The Akron "New Construction" Clincher Tires

Every day your automobile remains unequipped with the Akron "New Construction" Clincher Tire, you and your auto are at the mercy of numberless mishaps and accidents due to inferior tires.

The Akron "New Construction" Clincher Tires are constructed throughout of the finest and purest Para rubber and Sea Island cotton duck. These tires are absolutely the safest and most reliable tires made. Why trifle with a cheap or inferior tire, even if you do save a few dollars in the cost? We want to tell you about the best Tire on earth. Write for our free booklet.

If testimonials interest you we have any number of them.

Here is one.



WILKESBARRE, Pa., Feb. 24, 1904.

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Gentlemen: We are pleased to advise you that of the several sets of your tires used by us on new cars, and supplied on other cars to replace old tires, we have no complaints whatsoever from any of our customers; in fact, so perfect has been the service received from your tires, we have determined to specify them on all machines sold by us this year, and to handle them as exclusively as possible. Very truly yours,

AUTO MACHINE & REPAIR CO. G. L. Davis, Mgr.



TIRE & RUBBER CO.
Dept. A., AKRON, OHIO.

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"Rims branded in the channel with this copyright mark have been inspected and pronounced perfect. We guarantee our tires only on rims so branded."

The Incomparable White.

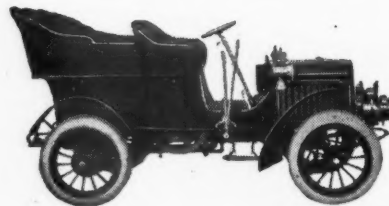


THE FINEST AUTOMOBILE CUP IN AMERICA
WON BY THE INCOMPARABLE WHITE IN OPEN
COMPETITION. (NO RESTRICTIONS AS TO
WEIGHT OR POWER OF CONTESTING CARS)

WHITE SEWING MACHINE COMPANY CLEVELAND, O.

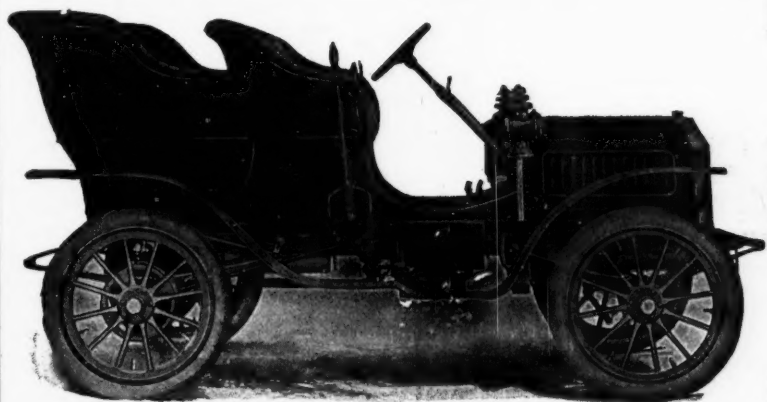
The YALE Touring Car & & \$1500.00

THE YALE is a beautifully finished, roomy, luxurious family car at a moderate price. It is a happy medium between the ponderous, "all-motor" racing car and the noisy but inefficient runabout. It will do all the work asked of it, do it easily and is dependable. A comparison of the Yale with the other cars exhibited at the National shows goes to show that in the Yale you can offer more for the money than in any other car made. Send for catalogue, and at the first opportunity examine a Yale.



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Members Association Licensed Automobile Manufacturers.



National Motor Vehicle Co.

BOTH POWERS ELECTRIC—GASOLINE

Ample Battery, large Tires, efficient Motors, a complete line. Western, Exide or Edison Batteries. Run-a-bouts, Stanhopes, Traps, etc., etc. Four Cylinders at price of two. Bevel Gear at price of Chain. Pressed steel frame, Double Steering connection, Roomy Tonneau.

4-Cylinder, 3 3-4 x 4, . . . \$2,000
4-Cylinder, 5 x 6, . . . \$3,000

Get our Catalogue and Circulars.

NATIONAL MOTOR VEHICLE CO. 1200 E. 22nd Street, Indianapolis, Ind.

THE MICHIGAN

WE LIKE TO GET THIS KIND.

ANACONDA, MONT., April 25, '04.
The "Michigan" is here, and to the citizens as well as myself, is a revelation of beauty. It far surpasses any idea a person gets from your cut in the advertisements. It will come up our main street on the high gear. I tried a very steep hill west of my home tonight and really expected to start backward every minute, but not so, she climbed it without a falter. Mind you I am up in the rarefied air over 5,000 feet. You can refer any "Doubting Thomas" to me. Thanking you for your courtesy, I remain,
Yours with gratitude, D. J. MACDONALD,
Dentist, Rooms 3, 4 and 5 Durston Bldg.

"THERE ARE OTHERS"—Lots of 'em.

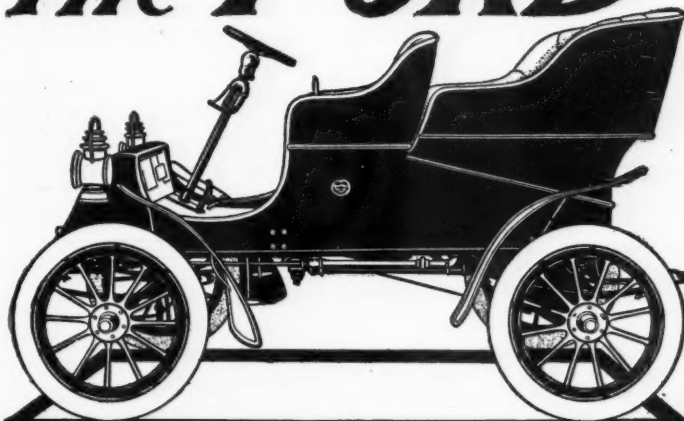


Price is still only **\$475**

Catalog for the asking.

Michigan Automobile Company, Ltd.
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OUR claim for the superiority of the Ford double opposed motor over the single cylinder is substantiated by the fact that without an exception all the \$2,000.00 to \$5,000.00 cars have two or more cylinders.

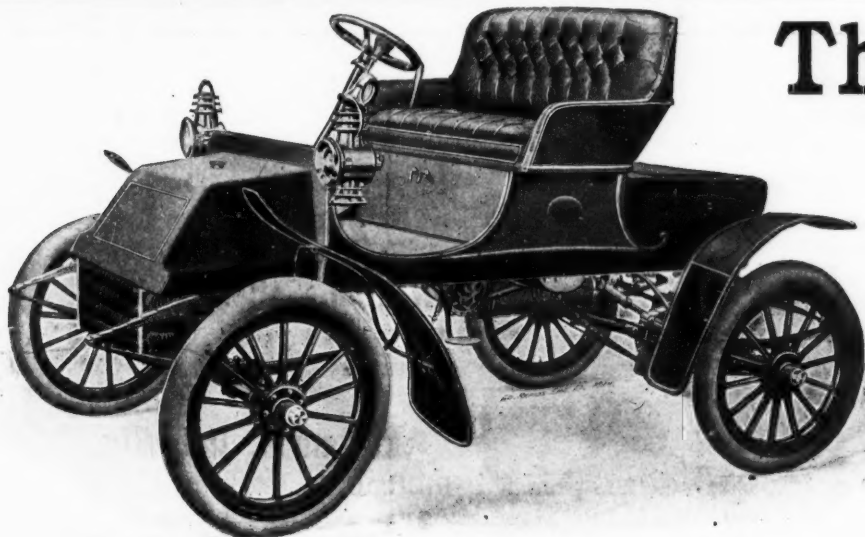
The Ford gives greater satisfaction and equals in speed, reliability and comfort any car sold at less than \$2,000.00.

Price, with Tonneau, \$900.00

We agree to assume all responsibility in any action the Trust may take regarding alleged infringement of the Selden patent to prevent you from buying the Ford—"The Car of Satisfaction."

Write for illustrated catalogue and name of our nearest agent.

FORD MOTOR CO., - - DETROIT, MICH.



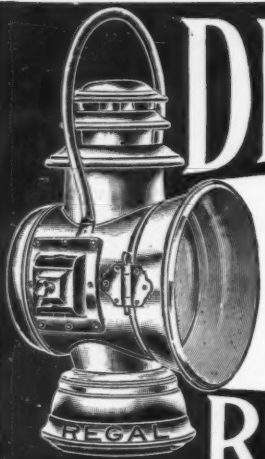
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"It Goes and Goes Right."

Ready for prompt shipment. 78-inch wheel base, 30-inch fourteen spoke artillery wheels, 3-inch detachable tires, 7 horse-power motor, widest seat on any Runabout. Luggage space in hood. Finest dark red body and lighter red gear

Price \$750

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DIETZ AUTOMOBILE LAMPS

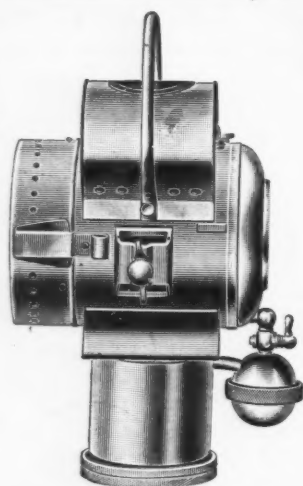
YOU WILL SEE DIETZ LAMPS

OR AN IMITATION OF THEM ON EVERY STEAM OR GASOLINE AUTOMOBILE.

WHY? Because both makers and users of lamps saw that we had the only practical way of making **GOOD OIL LAMPS.** You will be sure of satisfaction if you insist on **Genuine Dietz Lamps.**

R.E. DIETZ CO. 37 LAIGHT ST. NEW YORK. EST. 1840

Stamped with the Name.



COLUMBIA AUTO LIGHT, No. 20
Provided with condensing chamber in the rear.

SIX YEARS OF EXPERIENCE

Have demonstrated our system of acetylene gas generation to be the simplest and most reliable yet devised. All of our models may be operated in the same manner as your OLD OIL BARN LANTERN

Remember that we guarantee our goods :: :: :: ::
Many improvements for 1904

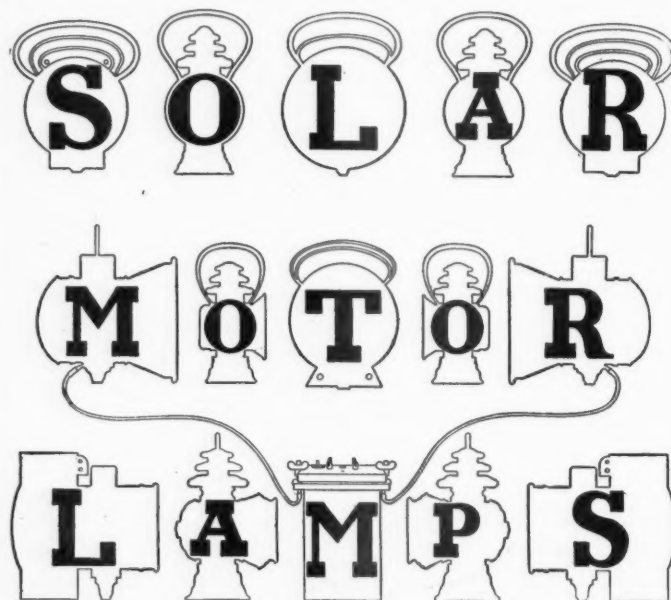
NEW COLUMBIA AUTOMOBILE JACK

It works automatically. No springs. No weak parts. Can not get out of order. Is adapted to all kinds of automobiles. When lever is closed up (as shown by dotted lines) it is 12 inches high, 3 inches thick and 5 inches wide, and raises to a height of 19 inches.

Price - - - - - \$3.00



HINE-WATT MFG. COMPANY
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All automobile lamp burners are much alike but the **generators**, the real keynote of lamp success, are vastly different. Examine the perfect system of the Solar Generator and we feel sure you will agree with us that in lamps **S-O-L-A-R** spells success and satisfaction. You have enough other troubles without adding "lamp troubles," so don't experiment—use Solars that have stood the test for many years.

BADGER BRASS MFG. CO., Kenosha, Wis.
Eastern Office: 11 Warren Street, New York.

After you have tried other lamps and found them wanting, investigate the

Richmond
Automobile
Lamps

They will suit you.



Richmond Lamps are better than other lamps because they are made better—on better principles—they give more light and wear longer.

Our catalogue No. 4 tells all about them. Shall we send it to you?

Richmond, Ind. Mfg. Co.
RICHMOND, - - INDIANA

Some People

are so superstitious that they consider it unlucky to sleep three in a bed, but everyone concedes that the dealer who secures the MITCHELL is lucky beyond all others.

Have you been looking for a light car with 3 forward speeds? If you have, write us.

Do you believe in the multi-cylinder engine? If so, write us.

Have you an AIR-COOLED car in your line? If not, write us.

Do you consider automatic lubrication desirable? If so, write us.

If you desire more reasons for writing to us, write us and we will write you reasons that are right.

Mitchell Motor Car Co.

Maker Motor Cars and
Motorcycles

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THE B-OK TIRE

does away with worry, making automobiling a constant pleasure. ¶ In ordering your car insist on having B-OK's, thus insuring yourself on tires. ¶ They give you comfort in mind and body. . . .



"The Tire That Tires Last"

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and GAS ENGINE BROKER

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OFFERS FOR SALE A LARGE LIST OF AUTOMOBILES, AUTOBOATS AND MOTORS

Following are a few bargains taken from my May list:

AUTOMOBILES. Oldsmobile runabout—1903 model, has been varnished and given a thorough overhauling. Will guarantee it to be in perfect running condition. Price \$300, or offer to a quick purchaser.

Orient, 1904 buckboard, will make a very low price to a quick buyer, it has never been used and I will guarantee it to be in good running condition for one year.

Haines-Apperson touring car, 1933 model, with canopy top, glass front and lights. As it is in very good condition I will guarantee it for one year. First offer takes it.

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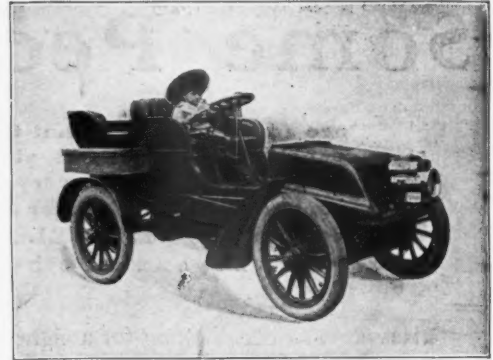
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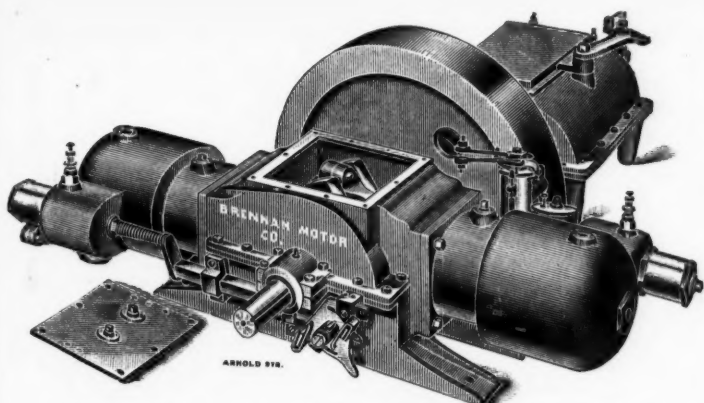
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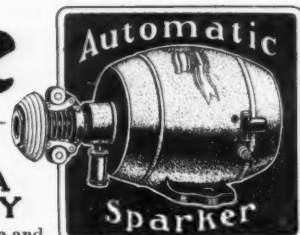


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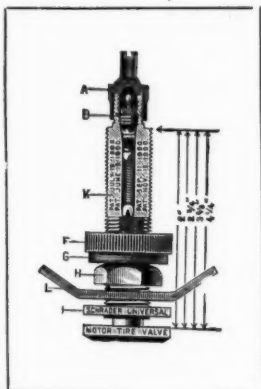
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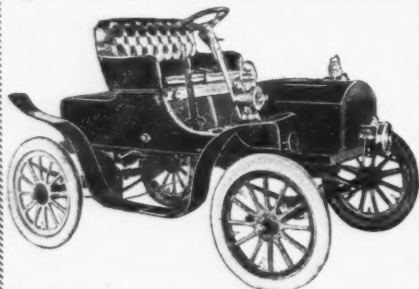
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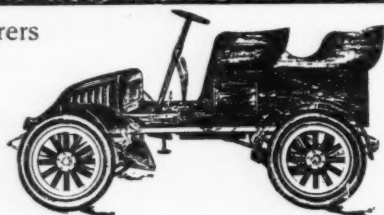
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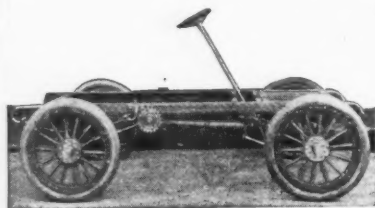


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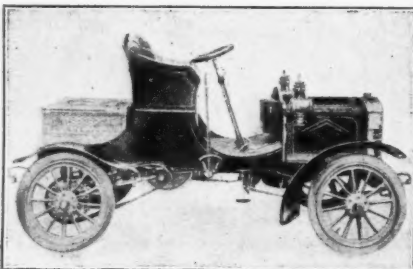
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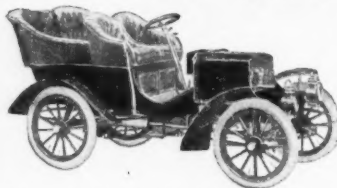


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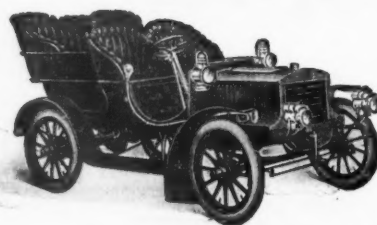
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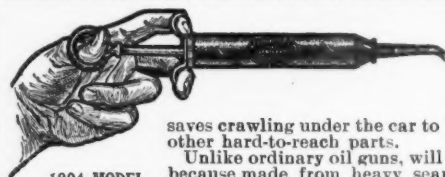
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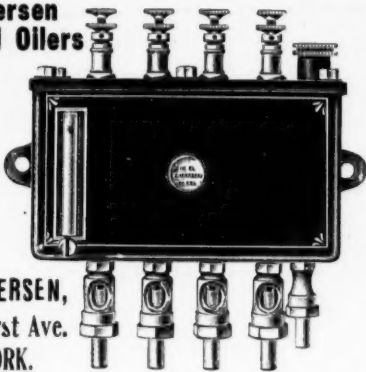
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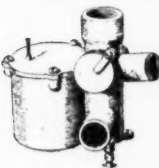
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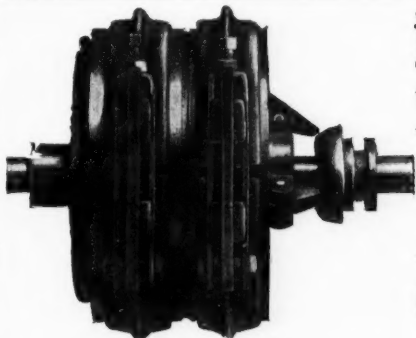
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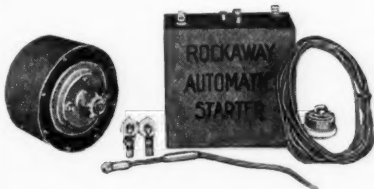
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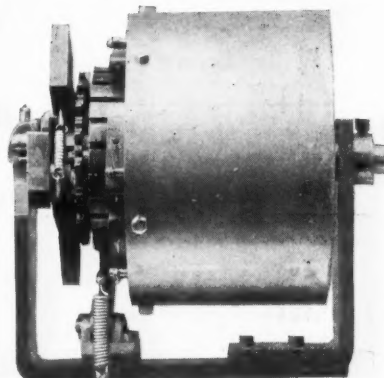
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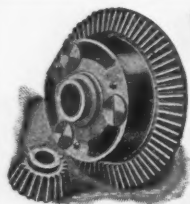
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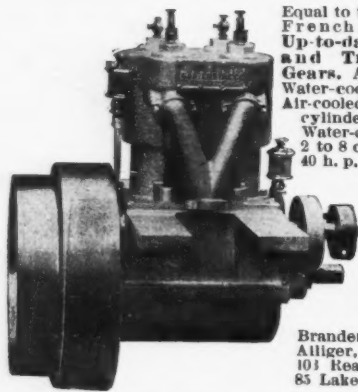
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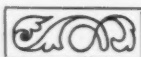


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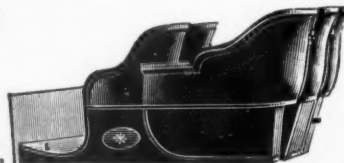


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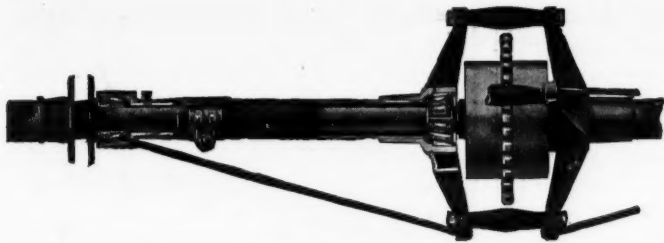
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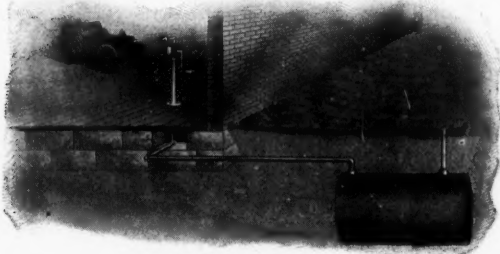
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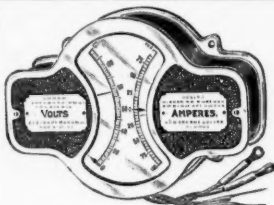


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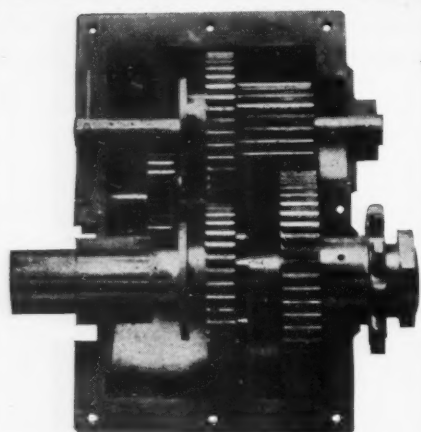
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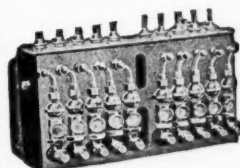
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